

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 737.—Vol. XIX.]

LONDON, SATURDAY, OCTOBER 6, 1849.

[PRICE 6D.]

Stannaries of Cornwall.—In the Vice-Warden's Court.

IN THE CONSOLIDATED CAUSES OF

KITTO v. HOWE.

STRONGMAN AND OTHERS, v. SAME.

IN RE CUBERT SILVER-LEAD MINES.

NOTICE IS HEREBY GIVEN, that the SALE of the MINING MACHINERY and MATERIALS of the said CUBERT SILVER-LEAD MINES, advertised to take place on Tuesday, the 16th day of October inst., on the said mine, will not be held on that day, and is POSTPONED until further notice.

MR. GEORGE NICOLLS SIMMONS, Solicitor, Truro.

Dated Registrar's Office, Truro, Oct. 2, 1849.

Stannaries of Cornwall.—In the Vice-Warden's Court.

FRANCIS v. CAVE.

WHEREAS the VICE-WARDEN did, by an ORDER of this COURT, made in this cause, and bearing date the 27th day of August last, Order and Decree that a SALE be made of the ORES, and (if necessary) the ENGINES, MACHINERY, and MATERIALS upon and belonging to PENBERTHY CROFTS MINE, in the parish of SAINT HILARY, within the said Stannaries, under the direction of the Registrar of this Court, and that the proceeds of such sale should be applied by the said Registrar in the manner directed by the same Order or Decree.

Notice is hereby given, that, pursuant to the said Order or Decree, a PUBLIC AUCTION will be held at PENBERTHY CROFTS MINE, on Monday, the 15th day of October next, at Eleven o'clock in the forenoon, for SELLING, either together or in lots, the undermentioned

MINING MACHINERY AND MATERIALS.—VIZ.:

21 17-inch pumps, 9 feet long, 1 17-inch ditto, 6 ditto, 1 15-inch ditto, 6 ditto, 1 11-inch ditto, 9 ditto, and 2 matching pieces, 1 15-inch windbox, 9 feet long, 1 15-inch ditto, 6 ditto, door-cuppiece, 1 16-inch clackseat and door, 1 16-inch working piece, 11 feet long, 1 17-inch pole-case, 7 ditto, 5 strapping plates, 1 16-inch pole-case, 1 15-inch plunger-pole, stuffing-box and gland, iron-work for two bobs—viz., gudgeons, troughs, brasses, pins, bruses and saddles, 7 pairs faggoted iron caps, 4 cwt. of brass, several pairs of rod-plates, large sliding glands, bolts, flange and rod-bolts, sundry pieces of oak and deal, and a quantity of old cast and wrought-iron, brass, &c.

For viewing the same, application may be made to Mr. Morris, at the mine; and for further particulars (if by letter, pre-paid) to Mr. CHILCOTT, Solicitor, Truro.

Dated Registrar's Office, Truro, Sept. 26, 1849.

Stannaries of Cornwall.—In the Vice-Warden's Court.

KEAST v. VERRAN.

WHEREAS the VICE-WARDEN did, by an ORDER of this COURT, made in this cause, and bearing date the 27th day of August last, Order and Decree that a SALE be made of the ORES, and (if necessary) the ENGINES, MACHINERY, and MATERIALS upon and belonging to TREWETHA MINE, in the parish of ENDELLION, within the said Stannaries, under the direction of the Registrar of this Court, and that the proceeds of such sale should be applied by the said Registrar in the manner directed by the same Order or Decree.

Notice is hereby given, that, pursuant to the said Order or Decree, a PUBLIC AUCTION will be held at TREWETHA MINE, on Friday, the 19th day of October inst., at Twelve o'clock at noon, for SELLING, either together or in lots, the undermentioned

MINING MACHINERY AND MATERIALS.—VIZ.:

15 fathoms of pumps, 11 in number, capstan, shears, balance-bob, 5 ash and elm trees, 1st of timber, 60 fathoms of iron-rod, 1st of iron, 4 dozen new antimony bags, beam, scales, and weights, 6 iron pulleys, 4 dozen pick-hills, 3 dozen shovel-hills, 3 pump boxes, a quantity of powder, 3 wheelbarrows, 2 copper sieves, iron wire ditto, flange and other bolts, smiths' and miners' tools, tackle, &c.

For viewing the same, application may be made to Mr. John Sealey, at the mine; and for further particulars (if by letter, pre-paid) to Mr. CHILCOTT, Solicitor, Truro.

Dated Registrar's Office, Truro, October 2, 1849.

DUDLEY, WORCESTERSHIRE.

IMPORTANT AND EXTENSIVE SALE OF STEAM-ENGINES, RAILWAY PLANT, CARTS, HARNESSES, &c. TO ENGINEERS, RAILWAY CONTRACTORS, BUILDERS, COLLIERY OWNERS, &c.

MR. G. O. BROWN begs to inform his numerous friends, that he is selected by the executors of the late Joel Buxton, Esq., to offer for unreserved COMPETITION, BY AUCTION, at DUDLEY, on the Oxford, Worcester, and Wolverhampton Railway, on Monday, the 15th of October, and three following days, their truly valuable and extensive stock of

RAILWAY PLANT.

COMPRISING FOUR STEAM-ENGINES, &c. &c.—VIZ.:

1 3-horse portable (Gough's patent) high-pressure engine complete; 1 4-horse portable (Gough's patent) high-pressure engine complete, and one extra tubular boiler; 1 4-horse high-pressure horizontal engine, with boiler, &c. complete; 1 16-horse high-pressure beam engine, but without a boiler.

1 new fly-wheel, weight about 3 tons; 1 other fly-wheel, from 15 to 18 cwt.; 4 4-inch metal engine-pumps, with sundry metal pipes; 6 6-inch metal engine pumps, with sundry lengths of pipe; 2 metal hand pumps; and 1 horse pump with horse gear and machinery complete.

A large quantity of MINE and PIT MACHINERY, such as winding, drawing, and tread gear, 30 small trolleys with wheels, axles, &c. complete; 10 large pit top or landing trolleys with wheels, axles, &c. complete; 40 wrought iron and wood axles, a large quantity of pit chains, pit tools, in great variety, such as drills, drifts, bars, picks, rod graters, oil lamps, &c. &c.

10,000 sleepers, 7 feet long, suitable for collieries. 20,000 lineal feet of 3 by 9-inch, and 3 by 11-inch planks. 5,000 cubic feet of Mangel, elm, and other timber. A large quantity of short balk ends, and other timber, all of which will be sold in lots to suit purchasers.

100 24-yard earth waggon, in excellent working condition; 100 wheelbarrows; 9 one and two-horse carts; 1 pair of timber cutters; 12 three-wheeled carts. 1 excellent dog cart; one screw press (on a carriage) for strengthening rails. 200 tons of flat-bottomed rails, from 35 to 45 lbs. per yard. 60 tons of scrap iron and scrap metal, 10 tons of bolts and nuts, from 4 to 18 inches long. 3 hearths of smiths' tools, comprising bellows, anvils, vices, tongs, hammers, swages, &c. Several sets of loose wheels and axles (new). All the building materials, stable fittings, and fixtures, included in the stables, workshops, &c. in the yard. 80 sets of cart and thrasher harness, together with numerous other effects, too varied to be particularized.

The ENGINES will BE SOLD ON TUESDAY, at One o'clock. Dudley possesses most excellent facilities for water or land carriage, being close to the canal in communication with all parts of the kingdom, and is distant 10 miles from Birmingham, 6 miles from Wolverhampton, and 5 miles from Stourbridge. The sale will commence each day at Ten o'clock, and the goods will be divided into such lots as will suit customers.—*Maister*, September 23, 1849.

WHITWELL COLLIERY.

MR. W. I. BARKER will PEREMPTORILY SELL, BY

AUCTION, on Tuesday, October 16, 1849, at Twelve o'clock at noon, for One pre-cisely, at the George Inn, Pilgrim-street, NEWCASTLE-UPON-TYNE.

THIRTY-EIGHT (64ths) SHARES

(late of Messrs. Andrew White and Richard White) of and in the well-known current-gold and silver colliery, called the WHITWELL COLLIERY, situated at WHITWELL, in the county of DURHAM, comprising a royalty of upwards of 635 acres, or thereabouts, of coal of first-rate quality; there being two seams opened out—the Hutton Seam and Low Main Seam, worked by two pits, and with pitmen's houses, workshops, engines, machinery, and all necessary stock and conveniences for carrying on the colliery on an extensive scale.

The colliery is situated adjoining to and communicating with the main line of the York, Newcastle, and Berwick Railway (the Durham and Sunderland Branch whereof is constructed to the bank head), and the coal can be shipped either at the ports of Sunderland or Hartlepool, or on the River Tyne. The convenient situation, high reputation of the coal, and many other advantages of this colliery, afford an excellent opportunity for any one desirous of an investment in a colliery, and the purchaser of these shares will be entitled to the acting direction and management of the undertaking.

The colliery may be viewed on application to Mr. Robson, Whitwell Grange, near Durham; and further particulars known on application to Messrs. J. J. and G. W. Wright, solicitors, Sunderland.—*Sunderland*, August 30, 1849.

WEST OF SCOTLAND MALLEABLE IRON-WORKS, AND LANDS OF BROADHURST AND MILTON.

TO BE SOLD, BY PUBLIC ROUP, within the Royal Exchange Sale Rooms, Glasgow, on Wednesday, the 24th day of October, 1849, at One o'clock afternoon.

MALLEABLE IRON-WORKS.

These large WORKS, belonging to the West of Scotland Malleable Iron Company, situated at MOTHERWELL, in the parish of Dalziel, and county of Lanark, with a little further outlay capable of producing about 600 tons of finished iron weekly. Upset Price, £40,000.

LANDS OF BROADHURST AND MILTON.

These LANDS contain, including the fenced ground, about THREE HUNDRED and NINETY ACRES, and will be SOLD with the MINERALS therein. Upset Price, £25,000.

All as fully described in former Advertisements.

For further particulars, application may be made to James Anderson, at the company's office, 88, St. Vincent-street; or to Moncrieff, Paterson, and Forbes, 45, West George-street, Glasgow, in whose hands are the title deeds and articles of roup, and plans of the property.—*Glasgow*, Sept. 26, 1849.

NORTH WALES.—VALUABLE SLATE QUARRIES

FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, those VALUABLE QUARRIES, called the CAMBRIAN SLATE QUARRIES, situate in the neighbourhood of FESTINGOG, in the county of Merioneth. They have for some time been in full operation, and producing a material of first-rate quality, at a comparatively trifling cost, being in the side of a mountain, water free, and not having more than from 10 to 12 feet "barring." The above property is well worth the attention of capitalists, both from its position and capability of producing, at a slight additional outlay, an almost unlimited quantity of slates.—For particulars apply to

MR. MICHAEL FOUSTEIT, Mining Engineer, Conway, North Wales.

N.B.—These quarries are sufficiently opened out to develop both the quality of the slate and the capability of the extension of the works.

Conway, October 2, 1849.

TO BE DISPOSED OF, the MANUFACTURING PRE-

MISES, BUSINESS, and CONNECTION (which is of a first-rate character), of a well established MACHINERY GREASE MAKER.

Also, several PATENT RIGHTS, FREEHOLD ESTATES, LEASES OF FOUNDRIES and ENGINEERING WORKS, FREESTONE QUARRY, and COAL and IRONSTONE MINES; SHARES in a well-known SLATE QUARRY, the PART, or the WHOLE, of a well-established GAS WORK, and STEAM-ENGINES and MACHINERY of all descriptions. For particulars apply to James Boydell, land, mine, and machinery valuer, and agent, No. 54, Threadneedle-street, London.

VALUABLE AND EXTENSIVE MINES OF COAL

AND IRONSTONE.

TO BE LET, ON LEASE, on most advantageous terms, the COAL and IRONSTONE under a very large tract of land, in the parish of RUABON in the county of DENBIGH, adjoining the Shroswary and Chester Railway. The proprietors of the ESTATES on which the Ponkey and Aberderyn Iron-Works were formerly carried on, have made arrangements TO LET BOTH PROPERTIES TOGETHER, which will give the lessee the facilities to carry on a lucrative business—very rarely to be met with.

The COALS and IRONSTONE on these ESTATES may be raised at very much less than an average cost, and the quantity proved in them (besides what are under a very large portion of one of them, in which there is no doubt they will be found) is estimated will supply iron-works with materials to make 400 tons of pig-iron weekly for upwards of 30 years, as well as 50,000 tons of the much and justly-celebrated Yard and Wall and Bench Coals per annum for sale, for the same period.

Printed particulars of the property, and lithographed plans of the estates, showing the minerals under them, with calculations as to the quantity of coal to be made from them, and approved of that of manufacturing it in Staffordshire, may be had upon application at the office of the Mining Journal, 26, Fleet-street; and at J. Boydell's, 54, Threadneedle-street, London; and at Messrs. Longville and Williams, solicitors, Oswestry. Oswestry, June 6, 1849.

CAMBRIAN IRON FOUNDRY, ENGINE AND BOILER

MANUFACTORY.

NEWPORT, MONMOUTHSHIRE.

ESTIMATES GIVEN FOR GAS and WATER-WORKS, RAILWAY, BRIDGE, and OTHER CONTRACTS, to any extent.

October 1, 1849.

CWMBRAIN PATENT IRON REFINERY.—The

PROPRIETORS OF IRON FORGES and MILLS are respectfully INVITED TO MAKE TRIAL OF MR. BLEWITT'S REFINED IRON, or METAL, PREPARED BY A

NEW PATENT PROCESS.

whereby the IRON is completely FREED FROM THE IMPURITIES CONTRACTED IN THE BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from the worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. THE PATENT METAL IS PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and PLATE-PLATES.

2. For TIN-PLATES, commonly called COKE-PLATES.

3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.

4. This COMPOUND PUDDLED, beat under the hammer into a bloom, reheated, and rolled into a 6 or 8-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-roads, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a squirrel, and the initials "R. J. B." and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

GREAT ECONOMY.—DUNN'S PATENT TRAVERSING

TRUCKS, FOR REMOVING RAILWAY CARRIAGES AND WAGGONS

FROM ONE LINE OF RAILS TO ANOTHER.—These TRUCKS have been examined, and approved of by some of the most experienced engineers in this country. They have been laid down, and well tested, both in England and upon the continent; their advantages over other traversing trucks are—that there is no expensive gear attached to them, and that they leave no gap or recess in the main line—consequently, making more room at a station, and less liable to accidents or getting out of repair.

The Salford Station, in Manchester, is worked by one; the Peterborough Station, upon the Eastern Counties Railway, where 10 lines of road are in use, is worked by one; also several small stations upon the Eastern Counties Railway and other lines; there is also one of these Traversers working nine lines of road upon the Paris and Lyons Railway, and others in progress of construction at the

WINDSOR BRIDGE IRON-WORKS, NEAR MANCHESTER.

where prices and other particulars may be obtained.—A good selection of Crane Patterns, for Wharf, Warehouses, and Docks, are kept.—Double and Single Geared Crabs, Blocks, Screw Jacks, &c., always on hand, ready for delivery.

STRUVE'S PATENT MINE VENTILATOR.

COST—£150.

TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, at a cost of £150. The apparatus produces a ventilation of 20,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of six months at the Eaglesbush Colliery, near Keath, working under a depression of 24 to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSES will be GRANTED on application to

MR. WILLIAM PRICE STRUVE, Swansea, CIVIL ENGINEER and MINERAL SURVEYOR.

INDURATED and IMPERVIOUS STONE, CHALK, &c.

—AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for HUTCHISONISED MATERIALS—hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large. Apply to HUTCHISON & CO., 140, Strand, London; or Tunbridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials, is rendered to resist frost, vermin, &c. LICENSES GRANTED.

TO ENGINEERS and BOILER MAKERS.—The

BIRMINGHAM PATENT IRON TUBE COMPANY MANUFACTURE PATENT LAP-WELDED IRON TUBES (under Mr. R. Prosser's Patent) for Marine, Locomotive, and all Tubular Boilers. Also, TUBES for Gas, Steam, and other purposes. All sorts of IRON GAS FITTINGS.

WORKS—Smethwick, near Birmingham.

LONDON WAREHOUSE—No. 6, Upper Thames-street.

TO THE OWNERS OF COLLIERIES, MINES, PLAN-

TATIONS, SAW-MILLS, &c.

IMPROVED CIRCULAR SAWS, MILL-SAWS, FILES.

Machine Irons, and Cutting Knives, Steel in Billet, Bar, Cast, Shear, and Drift Steel, Springs for Railways and Common Roads, Iron Washers, Bolts, Hammers, &c., on the most PERFECT and ECONOMICAL PRINCIPLES, MANUFACTURED with DISPATCH, by

BLAKE and PARKIN,

THE MEADOW STEEL-WORKS, SHEFFIELD.

MELLING'S IMPROVED DOUBLE SASH WINDOW.

IMPORTANT TO LUNATIC ASYLUMS, PRISONS, HOSPITALS, COTTAGES, FARM BUILDINGS, &c.

These PATENTED SASHES are raised and lowered without any cords and weights, and are so arranged that any width of opening can be secured free ventilation, without the possibility of giving width sufficient for escape. They are exceedingly simple, not liable to get out of order, and most admirably adapted for public establishments.

For further particulars apply to Mr. Thos. Melling, Rainhill Iron-Works, near Liverpool, or Mr. William Wheelhouse, agent, 97, Lord-street, Liverpool.

KING'S COLLEGE, LONDON.—GEOLOGICAL

MINERALOGY.—Professor TENNANT, F.R.S., will COMMENCE on Wednesday, 10th October, at Nine o'clock A.M., a COURSE OF LECTURES ON MINERALOGY, with a view to facilitate the STUDY of GEOLOGY, and of the application of MINERAL SUBSTANCES in the ARTS.—The Lectures will be illustrated by an extensive collection of specimens.

Further particulars may be obtained at the secretary's office.

October 3, 1849.

R. W. JELF, D.D., Principal.

TO BE SOLD, BY PRIVATE CONTRACT, a LEASE, for

21 years, of a LEAD MINE, in CARNARVONSHIRE, within 12 miles of a shipping port.—Every information may be had by applying (by letter, post-paid) to

THOMAS RICHARDSON, South Fensall, Carnarvon.

RUNNARD COOMBE MINE.—TO BE SOLD, SHARES

IN THIS MINE, at cost price.—Apply to "G. M.," at 15, New-street, Kidderminster—If by letter, post-paid.

MR. C. S. RICHARDSON wishes to meet with a FEW

GENTLEMEN to JOIN him to EXTEND the WORKINGS of a RICH TIN MINE, now paying a profit of above 25 per cent.—Specimens of the finest quality are to be seen at the office, 15, Old Broad-street, with Plans, Reports, Leases, &c.—£350 per part, or share, is all that will be required.—Mr. R. will provide the additional capital.

MINING PROPERTY.—MR. JAMES HERRON, MINE

AGENT, 33, CLEMENTS-LANE, LOMBARD-STREET, has received instructions TO DISPOSE OF SHARES in FIRST CLASS MINES, paying regular dividends, and yielding to the purchaser from 17 to 23 per cent. upon his outlay. He is also in a position to transact business in the following—viz. Stray Park, Trevisskey, Tincroft, Trellawny, Treleigh, West Canada, East Wheel Road, Lewis, East Pool, East Crowndale, Condurrow, Bedford, Holmbush, North Pool, South Bassett, South Welsh Franches, & North Roskar. FOREIGN MINES.—United Mexican, Alten, St. John del Rey, Imperial Brazilian, &c. Plans, and National Brazilian.

MR. HENRY VATCHER, MINING AND RAILWAY

SHAREBROKER, EXETER.

Competent and experienced AGENTS provided to INSPECT MINES, at the shortest notice.

MR. R. TRIPP, MINING AGENT and SHAREBROKER,

BEDFORD CHAMBERS, BAMPFYLDE-STREET, EXETER.

JAMES LANE, MINING SHARE DEALER,

80, OLD BROAD-STREET, LONDON.

ASTURIAN MINING COMPANY.—Notice is hereby given,

that at a Special General Meeting of this company, held at the company's offices, on the 24th day of September inst., it was resolved, That Messrs. ROBERT MOORE, MICHAEL FORRISTALL, and JAMES SCOTT, appointed as Liquidators, at the Special General Meeting of the 25th day of August last, do ACT as LIQUIDATORS, in conjunction with the board of directors, and that their appointment be, and is now, confirmed. That, by virtue of the said nomination, the board of directors of this company, in conjunction with the said Messrs. Robert Moore, Michael Forristall, and James Scott, constitute the Committee of Liquidating Administrators, pursuant to the statutes of the company and the commercial code of Spain.

And that John Joseph Kelly, Esq., British Vice-Consul at Gijon, and Mr. George Lambie, the company's agent in the Asturias, are nominated the agents of the said administrators in Spain. K. MACKENZIE, Secretary. Offices of the Company, 9, Austinfriars, London, Sept. 28, 1849.

ASTURIAN MINING COMPANY.—The Board of Directors

and Committee of Liquidation hereby give Notice, that they have made a further CALL of TWO POUNDS, or 200 reals valora, per share upon the shares held in the capital stock of the company, and that such call is PAYABLE, for holders of Spanish shares, at the bank of Messrs. H. O'Shea and Co., Madrid; and for all other shares, at the London and County Bank, Lombard-street, London, on the 10th day of November next. That shareholders who shall pay one-half of the said call on or before the said 10th day of November, will be allowed one month for the payment of the other half of the said call: 5 per cent. discount will be allowed on pre-payment.

K. MACKENZIE, Secretary. Offices of the Company, 9, Austinfriars, London, Sept. 28, 1849.

BOLANOS MINING COMPANY.—NOTICE TO SCRIP

SHAREHOLDERS AND OTHERS.—At the Special Meeting of shareholders in the above company, held on the 26th ultimo, resolutions were passed for creating 42,000 preference shares, at the price of £1 per share, payable in three equal instalments on the 12th October instant, the 20th November, and the 16th January next (the said sum of £1 to be repaid before any dividend is made on the shares now existing). The present shareholders have the pre-emption of such shares to the 12th October, in the proportion of three new shares for each existing share (whether registered or scrip), and on the expiration of that date the shares not subscribed for by those who are entitled to subscribe for the same will be allotted to such other shareholders and other parties as shall send in their applications to the company's office, 2, Duke-street, Adelphi, on or before the said 12th October.

London, October 3, 1849.

IMPERIAL BRAZILIAN MINING ASSOCIATION, Win-

chester-house, Broad-street, London, October 1, 1849.—THE TRANSFER BOOKS will CLOSE on Monday, the 15th inst., and re-open on the day after the general meeting in Nov., of which due notice will be given. GEORGE THOMAS, Acting Director.

TINCROFT MINING COMPANY.—TWELFTH DIVI-

DEND.—Notice is hereby given, that a DIVIDEND of SEVEN SHILLINGS per share, being 5 per cent. upon the paid-up capital of this company, will be PAID on Wednesday, the 31st inst., and succeeding Wednesday, between the hours of Twelve and Three.—The certificates are required to be left at the office two clear days, in order to be examined and marked.—*Salvador House*, October 4, 1849.

WEST DOWNS MINE, WHITCHURCH, NEAR TAVI-

STOCK.—WE hereby give Notice to all PERSONS whosoever, NOT TO SUPPLY GOODS ON CREDIT, or SUFFER any DEBT to be CONTRACTED with them on our account, in respect of the above Mine, by any person or persons whosoever, as we are not accountable for any debts which have been, or may be, contracted in respect of the said mine. THOMAS HARRISON, ALFRED WEATHERHEAD, J. D. DOW, J. BRIGHTMAN, as Trustees. G. THOMAS.

DUISBURG IRON-WORKS and MINES,

IN WESTPHALIA, CLOSE TO THE RHINE.

Managed in England according to the principles of the "Cost-book System," and in Prussia as a *Société en Commandite*, under laws limiting the liability of the shareholders to their personal subscription. Company's Offices, 28, Moorgate-street, City.

BICKFORD'S PATENT SAFETY FUSE.—The Patentees

of the ORIGINAL, and only real, SAFETY FUSE, beg to inform Merchants, Mine Agents, Railway Contractors, and all persons concerned in Blasting Operations, that, for the purpose of protecting the public in the use of a genuine article, the PATENT SAFETY FUSE has now a thread wrought into its centre, which being patent right, infallibly distinguishes it from all imitations, and ensures the continuity of the gunpowder. The Safety Fuse is now protected by a Second Patent, and manufactured by greatly improved machinery. BICKFORD, SMITH, & DAVEY, Camberne, Cornwall.

STEAM TO INDIA AND CHINA, via EGYPT.—Regular

MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS TO CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG. THE PENINSULAR and ORIENTAL STEAM NAVIGATION COMPANY BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 30th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers. MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 20th

FLUCTUATIONS IN THE STOCK AND SHARE MARKET, DURING THE MONTH OF SEPTEMBER.

Stocks and Shares.	Share.	Paid.	Pr. Sept. 1.	Highest.	Lowest.	Present.
Consols	100	20	274	274	274	274
Exchequer Bills	100	20	274	274	274	274
RAILWAYS.						
Brighton	100	20	274	274	274	274
Birmingham and Oxford	100	20	274	274	274	274
Calderdale	100	20	274	274	274	274
Eastern Counties	100	20	274	274	274	274
Great Northern	100	20	274	274	274	274
Great Western	100	20	274	274	274	274
London and North-Western	100	20	274	274	274	274
Midland	100	20	274	274	274	274
North Staffordshire	100	20	274	274	274	274
South-Eastern	100	20	274	274	274	274
South-Western	100	20	274	274	274	274
York, Newcastle, & Berwick	100	20	274	274	274	274
York and North Midland	100	20	274	274	274	274
Boulogne and Amiens	100	20	274	274	274	274
Northern of France	100	20	274	274	274	274
East Indian	100	20	274	274	274	274
Great Indian Peninsula	100	20	274	274	274	274

The range of Consols has not exceeded 1 per cent., but it will be observed that in railway shares the crash has again been fearful. Great Western shares show a difference of nearly 16½ between the highest and lowest quotations, and North-Western 14½, with a subsequent reaction of only 4½. In the future, and 5½ in the latter. Consols also have gone from 20½ to 14, leaving off within a fraction of the lowest price.—Times.

* Ex div.

GEOLOGICAL STRATA OF THE METROPOLIS.—Within the last few days, sections of various parts of the strata of London, where borings have been made, have been distributed, for the information of persons projecting schemes for improved drainage, and also of several wells, which sections, according to a correspondent of the Times, are anything but correct. He refers, for instance, to the thickness of the London blue clay at Goding's Brewery, Southwark, which is stated to be 160 feet thick, when it is only 100 feet; the surface of the chalk also is indicated at a depth of 190 feet, when it is 245 feet. Another of these sections indicates the thickness of the blue clay at Messrs. Thorne's Brewery, Westminster, to be 162 feet, when it is only 100 feet; and the chalk is stated to be 202 feet from the surface, when it is 230 feet. The section of Messrs. Sear's, Millbank, showing the thickness of the blue clay, 98 feet, is correct; and, being within 100 yards of Messrs. Thorne's, proves the inaccuracy of the latter, as the surface of the blue clay is of pretty uniform and gradual dip towards the west in that portion of the metropolis. We believe this statement to be about correct, and are surprised at the display of so much ignorance or carelessness, or both, on the geology of the London basin—a subject on which the officials ought to be well informed, in so important a public department as the Commissioners of Sewers Office. Any common practical well digger could have given better information. They also state that the blue clay rests on the chalk. We would ask the geological *Solo*, who penned this information, how long it is since the plastic clay series disappeared from above the chalk formation, and from beneath the blue clay?

JUKES'S SMOKELESS FURNACE.—We understand that Messrs. Chambers, of Edinburgh, have had one of Jukes's revolving fire-bar furnaces put to a 10-horse steam-engine, and which proves most effective in preventing that nuisance in large towns, particularly where many large manufactures are carried on—clouds of black and sooty smoke. It is said, this is the first instance of Jukes's patent furnace being applied in Scotland; but, when the comfort and economy resulting from its use is more generally known, there is no doubt the example will be extensively followed.

CHRONOMETERS.—From a return obtained by Capt. Pechell, which has been printed by order of the House of Commons, it appears that the number of chronometers which the Board of Admiralty have given permission to be placed on trial at the Royal Observatory, Greenwich, during the last five years, amounts to 219, by various makers—the following of which have been purchased after the trials:—14 by Loseby, 8 by Poole, 7 by Parkinson and Frodsham, 5 by C. Frodsham, 5 by Reid and Son, 4 by Birchall, 4 by E. J. Massey, 3 by Appleton, 3 by Dent, 3 by Eiffe, 3 by Hutton, 3 by Webb, 2 by Carter, 2 by Fletcher, 2 by Norris and Campbell, 2 by C. Shepherd, 1 by Baker, 1 by Connell, 1 by Clarke, 1 by Hewitt, 1 by McGregor, 1 by Lister, 1 by Munton, 1 by H. Parkinson, and 1 by W. Shepherd. It also contains copies of the reports and opinions submitted to the Board of Admiralty, by the Hydrographer and Astronomer Royal, relative to Mr. Loseby's mercurial compensation for chronometers.

TO REMOVE CHEMICAL MARKING INK STAINS FROM LINEN.—Nitro-muriatic acid has been recommended for this purpose, but, without entering into the obvious demerits of this agent, which is neither fitted for general use, nor suited for cambric or fine linen, Boettger proposes a concentrated solution of Liebig's cyanide of potassium as a sure and harmless means of removing the stain of marking-ink from linen textures. In the preparation of this salt, it is essential that the ferrocyanide be as free as possible from sulphate of potash, to prevent the generation of a combination with sulphur during the process of heating, which would entirely defeat the object. Names and marks on linen or wearing apparel, of many years standing, may be totally and effectually removed from the finest cambric, even without the slightest injury to its texture, by rubbing the marking gently with a rather concentrated solution of oxalate of potash. The red and black stains produced on the skin, by the solutions of the salts of silver and gold, may be perfectly removed by a solution of the above-mentioned salt. It is necessary, however, to observe, that the skin should be intact, as this salt produces ill effects if applied to open sores.

ASSURANCE OF RAILWAY PASSENGERS.—The new system of railway assurance comes into operation on the Great Western Railway between Paddington, Bristol, and intermediate stations on Monday next, and arrangements are being made for the same purpose with the other railways in the West of England.

INDIAN RIVER NAVIGATION.—A short time ago, Messrs. Allen and Co. published a pamphlet, by Mr. John Bourne, C.E., "Illustrating the practicability of opening up some thousands of miles of the river navigation of India, by the use of a new kind of steam-vessel, adapted to the navigation of shallow and shifting rivers." The difficulties which have sprung up in the shape of railwaying our great eastern empire, and the anxiety existing on the score of cotton cultivation, have drawn much attention to the report of Mr. Bourne, who urges the practicability of navigating the shallowest rivers of India with steam-vessels well adapted to the carrying trade. Messrs. Boulton and Watt offer to construct a description of vessel on the plan suggested by Mr. Bourne, with high-pressure engines capable of exerting 300 to 350 horse power, and of propelling them at the rate of 15 miles an hour, with a load of 250 tons, upon a draught of only 12 inches of water. We learn that our excellent townsman, Mr. William Fairbairn, civil engineer, has reported upon the mechanical arrangements of the steamer suggested by Mr. Bourne, and states that he considers the suggestion to contain the elements of perfect success. Mr. G. W. B. Jackson, C.E., the representative of Mr. Bourne in this country, has arrived in Manchester, with the view of calling the attention of this commercial community to the subject, and of obtaining their opinion in its favour, with a view to inducing the East India Company to afford their fostering protection to a company who have this navigation scheme in view, and to give them such privileges as they may seem to deserve. Mr. Jackson had a long interview with the directors of the Commercial Association of this town on Thursday last, and the object of his visit is to undergo further consideration by that body to-morrow.—Manchester Examiner.

EDEN'S FAMILY MEDICINES.—EDEN'S HOOPING-COUGH MIXTURE has attained universal celebrity as a sure and efficacious remedy for coughs, colds, asthma, influenza, pulmonary consumption, and all affections of the throat, chest, and lungs; a sure cure for hooping-cough, and all diseases to which children are subject.—EDEN'S PILLS are acknowledged by all to be the safest and best medicines in the world for the cure of bilious and nervous complaints, gout, rheumatism, bowel complaints, consumption, and general debility.—EDEN'S OINTMENT, as a cure for scrofula, and all cutaneous eruptions of the skin stands unrivalled.—EDEN'S FAMILY MEDICINES are prepared only, and sold wholesale, by Eden and Co., 2, Jewin Crescent, London, and retail by most respectable chemists and patent medicine vendors in the United Kingdom, in bottles, boxes, and pots, at 1s. 1d., 2s. 6d., and 4s. 6d. each.

DAMP AND GASEOUS EXHALATIONS.

SANITARY MEASURES. ALL MEMBERS OF BOARDS OF HEALTH are especially directed to the most EFFECTIVE MEANS which they can ADOPT to PREVENT the injurious and often FATAL EFFECTS upon the HEALTH of the COMMUNITY, arising from exhalations that are produced from moisture, decayed animal matter (as in grave-yards), stagnant water, and collections of fetid refuse, tending to produce a miasmatic state of atmosphere. In situations so effected, the impurities of the ASPHALTE of SEYSEL renders it the most perfect PAVEMENT or COVERING that can be relied upon for hermetically closing, and thereby preventing the rising of moisture and escape of noxious vapours. The present extensive application of this material for covering roofs, terraces, and arches, for preventing the percolation of wet, is strong evidence of its effectiveness for the above purposes, which is further confirmed by the following extract from the Report of the Commissioners on the Fine Arts:—

"In 1839, I superintended the construction of a house of three stories on the Rue d'Angoulême. The foundation of the building is constantly in water, about 19 inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of SEYSEL ASPHALTE, less than half an inch thick, over which coarse sand was spread.

Since the above date, no trace of damp has shown itself round the walls of the lower story, which are for the most part painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 3½ in. above the external surface of the soil, and only 19 in., at the utmost, above that of the sheet of water.

The layer of Asphalt having been broken and removed, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-posts.

* This method has been adopted at the new Houses of Parliament.

Seyssel Asphalt Company, Stangate, London. I. FARRELL, Secretary.

Transactions of the British Association.

ANALYTICAL INVESTIGATIONS OF CAST-IRON, by Mr. F. C. WHIGHAM.—This series of analyses showed the influence of the hot blast in producing the so-called "cold-short iron," by occasioning an increased reduction of phosphoric acid, and the consequent increase of phosphorus in the "hot-blast" iron. The respective per centages were:—

	1	2	3	4	5	6	7
Cold Blast	0.47	0.41	0.31	0.20	0.21	0.03	0.36
Hot Blast	0.51	0.55	0.60	0.71	0.54	0.07	0.40

The irons differed also considerably as to the state in which the carbon was contained in the hard white iron, resembling impure steel, containing nearly all its carbon in a state of chemical combination, whilst the carbon contained in the grey and mottled varieties of iron was principally contained only as a mechanical mixture. The presence of sodium and potassium in all the specimens examined was also noticed for the first time, and it was thought probable that these might materially affect the qualities of the metal.

ON COPPER CONTAINING PHOSPHORUS, WITH DETAILS OF EXPERIMENTS ON THE CORROSIVE ACTION OF SEA-WATER ON SOME VARIETIES OF COPPER, by Dr. PERCY.—Upon analysing a specimen of copper, to which when in a state of fusion some phosphorus had been added, it was found that it contained a considerable quantity of phosphorus, and also a large portion of iron derived from an iron rod employed in stirring the mixture at each addition of the phosphorus. The copper employed was of the "best selected"—it appeared to be harder than copper treated with arsenic. The details of the analysis of 116.76 grains were given, the result of which was—

Phosphorus	0.93
Iron	1.99

A second analysis gave—

Copper	95.72
Iron	2.41
Phosphorus	2.41—100.54

It has long been stated that a very small quantity of phosphorus renders copper extremely hard, and adapts it for cutting instruments—but such an alloy as that formed by Dr. Percy has not previously been formed. It is a remarkable fact, that the presence of so large a quantity of phosphorus and iron should so little affect the tenacity and malleability of the copper. The effect also of phosphorus in causing soundness in the casting of copper is interesting, and may be of practical importance. Some experiments were next described, made by Capt. James, of Portsmouth, bearing on the economic value of the alloy of phosphorus and copper. By the experiments made by Capt. James on the corrosive action of sea-water, it would appear that this compound was much less affected than most other specimens of copper tried. The results derived from exposing measured pieces of copper to the action of sea-water for nine months were as follows:—

Electrotype copper, loss per square inch	1.4 grains.
Selected copper	1.1
Copper containing phosphorus	0.0
Copper from the <i>Prote</i>	1.12
Dockyard copper, No. 1	1.66
Ditto No. 2	3.0
Ditto No. 3	3.48
Ditto No. 4	2.33
Muntz's metal	95

The results appear to be of sufficient importance to excite attention to the fact, and to elicit further inquiry, especially when it is remembered how important and economic a desideratum it is to the Admiralty to diminish or prevent the corrosive effect of sea-water upon copper.

REPORT ON THE OXIDATION OF RAILS IN AND OUT OF USE, DETERMINING

THE LOSS BY ABRASION, by Mr. R. Mallet.—The conclusions at which Mr. Mallet has arrived are the following:—The top surface of a railway bar in use is constantly preserved in a state of perfect cleanliness, freedom from oxidation, and polish; while the remainder of the bar is rough-coated originally with black oxide, and soon after with red rust (peroxide and basic salts). Not only is every metal electro-positive to its own oxides, but, as established in the second report on the action of air and water on iron, the polished portion of a mass of metal partially polished and partially rough, is primarily corroded on the rough portion. Hence a railway bar while in use is constantly preserved from rusting by the presence of its polished top surface. Such polished surface has no existence on the rail out of use. The upper surface of the rail in use is rapidly condensed and hardened by the rolling of the traffic over it, and it is also shown in the above report that, all other circumstances being the same, the rate of corrosion of any iron depends upon its density, and is less in proportion as this is rendered greater by mechanical means. As every metal is positive to its own oxides, the adherent coat of rust upon iron, while it remains, powerfully promotes the corrosion of the metal beneath, and this in a greater degree in proportion as the rust adherent is of greater antiquity. It has been shown that the rust produced by air and water, which at first contains but little peroxide, continues to change slowly, and becoming more and more peroxidised, becomes more and more electro-negative to its own base. Now, the rust upon a railway bar out of use continues always to adhere to it, and thus to promote and accelerate its corrosion; while the rust formed upon a railway bar in use is perpetually shaken off by vibration, and thus this source of increased chemical action removed. To recapitulate, railway bars forming part of a long line, whether in or out of use, corrode less for equal surfaces than a short piece of the same iron similarly exposed. Rails in use do corrode less than those out of use. This difference is constantly decreasing with the lapse of time. The absolute amount of corrosion is a source of destruction of the rail greatly inferior to that due to traffic. It is highly probable that the electrical and magnetic forces developed in the rails by terrestrial magnetism, and by rolling traffic, react in some way upon the chemical forces concerned in their corrosion; and that, therefore, the direction of lines of railway in azimuth is not wholly indifferent as respects the question of the durability of rails. The author concludes with two practical suggestions, deducible from the information obtained:—1. Of whatever quality iron rails are rolled, that they should be subjected, prior to use, to a uniform course of hammer-hardening all over the top surface and sides of the rails—and 2. That all railway bars, before being laid down, should, after being gauged and straightened, be heated to about 400° Fahrenheit, and then coated with boiled oil. This has been proved to last more than four years, as a coating perfectly impervious to corrosive action, while constantly exposed to traffic.

ON A CONTINUED SPONTANEOUS EVOLUTION OF GAS, AT THE VILLAGE OF

CHARLEMOND, STAFFORDSHIRE, by Mr. S. S. HOWARD.—In a field by the side of a lane near the village of Charlemond in Staffordshire, certain patches of ground had been noticed which, without any apparent cause, were destitute of vegetation. They excited little attention, as they were supposed to be what are commonly called fairy rings; and it was not till the summer of 1846 that their true character was discovered. The person who first paid particular attention to the cause of these barren spots, was the tenant of a neighbouring cottage (at which there is a cold bath, noted in the vicinity for its sanative properties). From certain circumstances he was led to believe that something permeated the earth in those spots, and having dug a hole, he inserted a gas-pipe, and on applying a light to the mouth of the pipe, he found to his great surprise that a large flame issued from it. It was not long before he conceived the idea of applying it to domestic purposes; and, in pursuing his experiments, he found that it was not necessary to convey it from the place where it was first discovered, at a distance of about 150 yards from his house, as on driving a pipe some inches into the ground under the floor of the cottage, he procured a continuous flow of gas. There are at the present time seven burners in the cottage, which enable the owners to dispense with fire and candles. The next cottage is supplied with two. It appears to make no difference to the supply of gas if allowed to burn for weeks together, and the flame is always of the same colour. In windy weather the flame is generally unsteady; when there is a blast of wind outside, the flames of gas rise several inches, but as each blast dies away they return to their original size. The escape of gas is larger in wet weather than in dry; but whether the gas is produced near the surface or otherwise has not yet been satisfactorily ascertained. The place where it issues from the earth is quite a mile from any coal-pit, and is outside the eastern edge of the Staffordshire coal-basin. The gas, as analyzed by myself from a portion of it (procured for me by Mr. S. Lloyd, jun., of Wednesbury, about three miles from the place), was composed principally of light carburetted hydrogen. In 1000 volumes of the gas, as it rises, I procured 996 volumes of light carburetted hydrogen, three of carbonic acid, and one of aqueous vapour and nitrogen. Its specific gravity is 0.6126. Its composition is somewhat different from the gas known as marsh gas, and from that which collects in the old workings of mines, as it contains less carbonic acid, and less nitrogen. The proportions in marsh gas of the former being 1-20th, and of the latter, 1-15th to 1-20th, whereas in this gas the proportions are only 3-1000th, and 1-1000th. It burns with a pale bluish-white flame, emitting considerable light and heat. Mixed with atmospheric air or oxygen it explodes with considerable violence on contact with flame or with the electric spark. As it issues from the pipe it has a moist or slightly musty smell, as if sticks partially decomposed; but after keeping for some time in stopped glass jars, this is lost, and it becomes perfectly inodorous. When inhaled in large quantities, it produces the same effects as hydrogen gas, but it does not appear to exert any evil influence on the health of the inhabitants of the cottage when diluted with a large portion of atmospheric air.—Mr. BLACKWELL, of Dudley, showed that a series of faults converged to the area of this singular evolution of gas, and suggested that probably it was through these that this carburetted hydrogen was discharged from the extensive carboniferous deposits of the neighbourhood.

ON MOTIONS EXHIBITED BY METALS UNDER THE INFLUENCE OF MAGNETIC AND DIA-MAGNETIC FORCES, by W. S. WARD.—In the course of a series of experiments in relation to dia-magnetism, I observed that the nature of the action upon many metals varied with the intensity of the magnetic force, and I found that such effects were in accordance with the observations of Professor Plücher, "that the dia-magnetic force increases more rapidly than the magnetic in relation to the power of the exciting magnet." I took considerable care in procuring specimens of pure silver, copper, lead, tin, and zinc, and found that these assumed the magnetic or dia-magnetic state according to the power of the magnet employed. I found a magnet of very moderate size and power sufficient, if the polar pieces were brought near to each other, and the metals, the subject of experiment, were in small discs, and delicately suspended. My attention being particularly directed to the phenomenon which Dr. Faraday terms *reversion*, I observed that the direction of the reversion motions changed when the magnetic or dia-magnetic state of the metal was changed. When the polar pieces were adjusted within one quarter of an inch apart, and the disc of metal so suspended that one-half was without and the other half between the polar pieces, another series of phenomena presented themselves. On developing the magnetic force the disc moves as a pendulum, with a tendency to pass outwards from between the polar pieces; on breaking contact the disc moved in the reverse direction, tending to pass within the pieces. Such motions are remarkable in that the direction of them is alike in all metals. Such motions appear to result from electrical currents rather than from magnetic or dia-magnetic forces, for on substituting for the disc of metal a flat spiral of insulated wire, they were not produced, but on using a similar spiral, but of which the ends of wire were in good contact, the like phenomena were observed as with a disc.

ON A THEORY OF INDUCED ELECTRIC CURRENTS SUGGESTED BY DIA-MAGNETIC PHENOMENA, by W. S. WARD.—The phenomena mentioned in the foregoing paper involve many points which cannot be easily accounted for according to the received theories of magnetism. Ampère's theory may account for magnetic or dia-magnetic phenomena taken separately, but not easily for the changes of condition which take place in the same metal, still less for the changes in the direction of the reversion motions, particularly those which follow the sluggish condition of the metal under the influence of that amount of force by which the magnetism or dia-magnetism are nearly balanced. It also appears that the induced or secondary electric current may be accounted for on the hypothesis that the current in the primary conductor effects a molecular disturbance in the parallel or secondary force (such disturbance being in the nature of a magnetic action), and that such disturbance correlatively induces the secondary current, both when it is produced and when it ceases. This hypothesis is also in accordance with the fact, that this induced current is only transient, and also appears the best explanation why the induced is not of equal duration with the inducing current.—Athenæum.

Transactions of the Royal Cornwall Polytechnic Society.

SYNOPSIS OF THE CORNWALL TICKETINGS FROM 1800 TO THE PRESENT

TIME, AND OF THE SWANSEA TICKETINGS, FROM 1815 TO THE SAME PERIOD, by W. POLKINGHORNE, Fowey Consols Mine, Tywardreath, which contains the following information:—The standard, produce, price, quantity of copper ores sold, amount of money realised, and the quantity of fine copper produced, with respective fluctuations for each year, as well as for every six years, exhibiting also the totals and averages for the whole period collectively. The above information is contained on a large sheet of drawing paper, on which the standard for copper ore in each year is delineated by horizontal lines of various colours, pointing to the particulars of each year—the said lines having a scale affixed to them, for the purpose of showing, in a bird's-eye view, the continued rise and fall annually of the standard. It is inscribed by permission to Mr. Trevery, of Place House, Fowey, "the greatest employer of miners and other labourers in the west of England." This synopsis necessarily includes a great deal of tabular matter, but we can only state the results, which were as follows:—The standard of Cornwall, from the year 1800 to 1848, both inclusive, will average about 115½ lbs., the produce about 84. The total quantity of copper ore sold, 5,334,969 tons, averaging per year 108,877 tons. The total quantity of metal produced from the ore 432,655 tons, averaging 8829 tons annually. The highest standard, on an average of 12 months, was in 1805, it then being 189½ lbs., in which year more money was realised for the ore than had been obtained for any previous year, or for either of the 29 years which followed until 1834, although the metal produced from the said ore was less in quantity than that of any subsequent year to the present day, with only two exceptions—in 1810 and 1811. The lowest standard of the county, on an average of 12 months, excepting 97½ lbs. in 1848, was in 1816—98½ lbs., when the ore realised a smaller amount than those sold in either of the 13 years previous, or in any year to the present day. The highest produce on an average of 12 months, since the year 1800, was in 1808, it then being 10, the standard being, at the same time, as low as 100½ lbs. The lowest produce, on an average of 12 months, since the year 1800, was in 1842—7½ lbs., and 1-16th, the standard being 120½ lbs., which was the highest average standard obtained for the past 23 years. The standard at Swansea, from 1815 to 1848, both inclusive, will average about 103½ lbs.; the produce about 12½. The total quantity of copper ore sold 873,658 tons, averaging per year 25,696 tons. The total amount realised for copper ore 10,011,685½, averaging per year 294,461½. The total quantity of metal produced from the same ore 124,690 tons, averaging 3667 tons annually. The highest standard, on an average of 12 months, was in 1819, it then being 134½ lbs.; the lowest standard, 87½ lbs., was in 1845. The highest produce was in 1841—17½ lbs.; the lowest produce, 8½ lbs., was in 1828. The largest quantity of copper ore sold for one year was 65,520 tons in 1844, which averaged 5400 tons per calendar month. In this year also the greatest amount ever obtained was realised for copper ore—882,598½, or say 73,547½ per calendar month; and from those ore more metal was produced than ever before, or since within a similar space—11,107 tons. The smallest quantity of copper ore sold for any one single year since 1815 was 287 tons, or say 24 tons per calendar month, which realised 4089½, being about 341½ per month, and from which was produced 39 tons of metal—a great contrast with the produce of 1844. The above results show that the Cornish ore have realised a much higher standard than those sold at Swansea. This is accounted for by the difference in the produce at the two places, low produce ore invariably selling at a high standard, in consequence of the "returning charges," which are calculated at per ton of ore, without respect to quality. As the meaning of the terms "standard" and "produce" is known only to a comparatively small number of persons besides those immediately connected with mining and smelting, it is thought advisable to append the following explanation:—The former is the term used to indicate the value of a sufficient quantity of copper ore required to produce a ton of copper, including an amount called "returning charges," which comprehends all expenses incurred from the time the ore is produced until they are smelted, in a metallic state fit for the market. The latter term is used to specify the per centage for metal contained in the ore, for example, a ton of ore of 12 produce contains 12-100ths of a ton of metal, &c. The compiler has disregarded the fractional parts both in weights and amounts, and his principal data for the foundation of the calculations are *Gryll's Annual Mining Sheets*, &c.

HYDRAULIC MACHINE PROPOSED TO BE APPLIED TO THE DRAINAGE OF

MINES.—This machine consists of a cylinder of convenient capacity, the axis of which is perforated to admit a rod, divided at its centre into two equal parts, each firmly attached to a quadrant piston of the same thickness as the cylinder, under, into which the whole should be accurately ground. The ends of the divided rod project, one on each side, so as to admit of the pistons being moved about in the interior of the cylinder, independently of each other, that part of each not attached to the rod working over it in the manner of a rule joint. One-fourth of the circumference is occupied by a slit, opposite which the pipe coming from the well, or reservoir, whence the fluid is to be raised, is attached; another similar slit is made in the quadrant immediately beneath, to which the suction pipe is adapted. To the projecting ends of the piston axes are fastened eccentric pinions, gearing into others on a fixed axle, through which motion is communicated to the whole. The eccentricity of these pinions is so adjusted, that during the time one pinion is occupied in passing over the aperture of the suction pipe (equal to one-quarter of the circumference), the other traverses the whole of the remaining part, driving the contents of the space between them into the suction pipe, at the same time creating a vacuum on the other side, which is immediately filled from the well, and expelled as soon as the other half has ceased. A constant flow is thus maintained, and the machine, in addition to its forcing powers, possesses the whole advantage derivable from the centrifugal force generated during a revolution. From the absence of valves or concealed machinery, such a machine properly constructed, with pistons having metallic packing, would be little liable to derangement, and the contents of the space between the pistons being twice expelled during one revolution of the handle, the whole quantity raised will be equal to the capacity of the cylinder. By making the pistons sextants, this may be increased one-third; but as the eccentricity of the pinions thus becomes greater, it might not be found advantageous to do so. In the application of this machine to the drainage of mines, it is proposed to make a connection between the series of the pumps in the shaft, and a rotary engine on the surface, by an endless band, or chain, passing over a barrel fixed on the axle of the fly-wheel of the engine, driving a similar barrel attached to the eccentric shaft of the former belonging to the highest lift, whence a similar connection is to be made in the next below, and so on to the bottom. By the use of rotary pumps urging the water forward in a continuous stream, the expenditure of power at present necessary to overcome the inertia of the column of water in the pipes will be avoided, so that an engine of less power will suffice to do the work.

IMPROVED PICK.—The design of this invention is to obviate the complaint among stone-cutters and cleavers, that their work being generally at a distance from a smithy, they are not able to obtain sharp tools as often as they want them, unless they waste much time in getting them sharpened; and if they carry with them, in the morning, a sufficient number of tools to serve for the whole day, they are seriously inconvenienced by the weight, the picks alone frequently weighing from 40 to 50 lbs. These inconveniences are obviated by the use of the improved pick, inasmuch as six sharp points of about 1 lb. each suffice for a whole day. The bodies of the picks, having scarcely any wear, are exceedingly durable, and not liable to get out of repair. The points are of cast-steel, which is stated to be much better for granite, or any other hard rock, than blaster-steel, the kind generally used. The points are held firm by putting a thin piece of leather, or other material, on two of the sides of the recess, and are got out from behind by driving a small steel key. The cost of these points is not half so much as that of common picks, to do the same work per day.

IMPROVED SAFETY-VALVE.—The purpose of this invention is to obviate the inconvenience experienced from the sticking of the safety-valve to the seating, and also to prevent explosion from the falling of the surface of the water in the boiler below the top of the tube. The sticking of the safety-valve to its seating is caused by the weight of the atmosphere acting upon it; when, from any cause, the steam in the boiler has been suffered to get low, its adhesion is frequently so close as to allow of its being moved with difficulty by a lever. When this is observed by the engine-man, the steam being unable to find a vent, increases until the pressure is raised to a dangerous extent, and unless attention is attracted by an unusual speed in the working of the engine, sometimes terminates in the bursting of the boiler. To prevent this, there are two valves made in the top of the boiler of unequal areas, the smaller opening downwards into it, and the larger upwards, as in the ordinary safety valves. These are connected to each other by a lever, with equal arms placed between them, so that the raising of one causes an equal depression of the other, and the reverse. On the steam being raised in the boiler, the valves will re-act on each other; but that which opens upward, on account of its greater area, will overcome the pressure on the other, and forcing it down, will permit the escape of the steam from both orifices, until its excess of surface is loaded to the necessary degree, the weight required which will be very small. Should the pressure of the steam get below that of the atmosphere, the latter acting on both valves will cause a similar compensation to take place on the outside, and its force exerted only on the difference of their surfaces (which should be very little) will be insufficient to produce this inconvenience. From the inside of the smaller valve is hung a float, by means of a copper chain of sufficient weight when depending from it to overcome the valve on the opposite end of the lever, and lift it together with its loading off its seat. The length of the chain is so adjusted, that while the float remains on the water above the upper part of the tube, it hangs loosely; but on the former sinking below, the chain is brought to its full stretch, and the float acting on the valve opens it, and lets off the steam, thus removing all chance of the occurrence of those dangerous explosions of which this is the fertile source. The invention was by T. Sampson, of Hayle.

METHOD OF REGULATING THE FLOW OF THE INJECTION WATER INTO THE CONDENSER, APPLICABLE PRINCIPALLY TO MARINE ENGINES, by Mr. G. J. CUSACK.—The injection water is at present the general practice, being allowed to flow into the condenser in an uninterrupted stream, and requiring the constant attention of the engineer, so as to proportion the quantity of injection to the bulk of steam proceeding from the engine. This latter must be subject to great variation, particularly in the case of marine engines, when the paddles are exposed to the action of a heavy sea, which at times almost brings them to a stand-still; and as the injection water still flows, the air-pumps become subjected to a severe strain, resulting from the partial choking, produced by the excess of water. On the other hand, should the speed of the engines become accelerated, and the injection remains unaltered, a loss of power must ensue from imperfect condensation. The manner in which it is proposed to remedy these irregularities, is by causing the difference of pressure in the condenser to act as a throttle-valve in the injection pipe, similar in construction and effect to the one in the steam pipe connected with the governor in land-engines. A small cylinder, of any requisite diameter, open at the bottom to the condenser, and at the top to the atmosphere, fitted with a piston, the rod of which is connected by means of levers, on the one side with a balance, or spring, and on the other with the governing lever of the throttle-valve in the injection pipe. The lower end of the cylinder being open to the condenser, the piston will be subjected to the pressure arising from the vapour within it, this being usually computed at 5 lbs. per square inch; the atmosphere acting on the top of the piston with a force of 15 lbs. to the inch, would leave a force tending to depress it in the cylinder of 10 lbs. A weight, acting by means of the long lever, is so arranged, as to compensate for this difference, and keep the piston in equilibrium, so long as the pressure in the condenser remains at the proper point—viz.: 5 lbs. to the square inch. Supposing that, from an insufficient supply of injection water, this pressure should be exceeded, the piston will rise, and lifting with it the end of the lever connected with the throttle-valve in the injection pipe, will increase the flow of water, and produce the required effect of more perfectly condensing the exhaust steam. On the other hand, should the flow become too great, so as to carry the amount of rarefaction too far, the piston would be depressed from the preponderance of atmospheric pressure, and the action on the throttle-valve would be reversed, so as to diminish the quantity of water flowing through it. The piston not being exposed to the action of heat, can be easily kept air-tight by a packing of soft leather; and, if necessary, a small quantity of oil kept on the top of it would be an additional security against leakage. There is a spring in the cylinder to prevent the too sudden rise of the piston, and ensure its gradual action on the throttle-valve of the injection pipe. The latter valve is supposed to be placed between the injection cock and the condenser.

ON THE MEANS OF PREVENTING THE CORROSION OF STEAM BOILERS.—Mr. J. Williams, Helston, proposes to prevent the corrosive action of water by placing over the whole of the inside of boilers a thin coat of varnish of such a nature, that, while it would remain unaffected by the high temperature to which it would be exposed, it should offer no serious resistance to the regular transmission of heat from the iron to the water. To effect this, he proposes to pour a small quantity of coal-tar into the water, immediately before the steam is about to be got up. This substance possesses the singular property, when thrown into boiling water, of parting with its volatile portions, and diffusing the remainder of its substance as a hard insoluble pitch all over the interior of the vessel, effectually preventing a sufficiently close contact between the water and sides to allow of chemical action, while it is so superficial as not to impair the efficiency of the boiler by lessening the conducting power of its surface.

MODEL OF APFOLD'S CENTRIFUGAL PUMP FOR DRAINING MARSHES, &c.—This model of a centrifugal pump will discharge 10 gallons of water per minute, and is only 1 in. diameter. One of the same shape, 12 in. diameter, will discharge at the same speed of the outside circumference, or 1-12th the number of revolutions, 1440 gallons per minute, being according to the square of the diameter, and not according to the cubic contents. From various experiments, it has been found that the larger model with the curved vanes does the most duty, on account of its receiving and delivering the water more obliquely; it will discharge 1800 gallons per minute, with 607 revolutions, but does the most duty at 635 revolutions, discharging 1400 gallons; therefore, if a pump, 1 inch diameter, raises 10 gallons, and another, 1 foot diameter, 1440 gallons, it follows that one 10 ft. diameter of the best shape, will pump 144,000 gallons per minute; of 20 feet diameter, 560,000; and of 40 feet diameter, 2,240,000 gallons per minute. To do the above duty, the circumference of the 20 ft. pump would be required to travel 560 yards per minute, which would be only 534 revolutions, and the 40 ft., 264. From the results of various experiments, it has been found that the loss of power would not be more than 25 per cent. It will be observed, the centrifugal force is not so much in the large diameter, on account of the water moving more in a straight line; but that is compensated for by the force being applied to a greater depth of water, being 10 ft. in the 40 ft., and only 3 in. in the 1 ft. With the 1 ft., 159 revolutions will raise the water 1 ft. high without discharging any; 318 revolutions, 4 ft. high; 636 ditto, 16 ft. high; 1272 ditto, 64 ft. high. The highest elevation to which the water has been raised with the 1 ft. pump is 67 ft. 8 in.; 1322 revolutions per minute, being less than the calculated height, which may be accounted for by leakage with the extra strain; while the 1 ft. pump is raising 8 tons of water 5 ft. 6 in. in height per minute, there is no greater strain on any part of the pump than 160 lbs. on the 6-in. drum, which is equal to a leverage of 3 in. It will pass almost anything that is small enough to go through, there being no valves. A quantity of nut-galls, about half a gallon, were thrown into the 1-ft. pump all at once, when it was at full speed, and they passed through without breaking one. [This machine was fully noticed and illustrated in the *Mining Journal* of Nov. 11, 1848.]

SAW-SETTER, by JOHN HARRIS, carpenter, Camborne.—This instrument is designed to give to saws the requisite "way" for clearing through the wood in cutting. A punch is kept up by a spring acting on the bottom of it. The saw is placed with one tooth on the anvil; the punch is then struck with a hammer, and thus indents the tooth. It is then moved two teeth farther on, and so on, stamping each alternate tooth, and the like operation repeated on the other side, renders the work complete. The principle is applicable to different sizes by merely shifting the anvil, and changing the punch.

MODEL OF AN IMPROVED ANGLE-IRON PRESS.—This press is adapted for turning angle-iron for steam-boats, boilers, and wrought-iron pumps, and is invented by W. Burrell, Hayle Foundry. The advantages of it are the keeping the angle-iron perfectly true whilst being turned, preventing its opening in the angle lengthsways, and dispatching, at least, 12 times the amount of work in any given period.

IMPROVED AIR-PUMP, by THOMAS BICKLE, Hayle Foundry.—In ordinary air-pumps, where the valves are acted on by the elasticity of the air, there is a limit to the amount of exhaustion to be produced by them, because when the air in the receiver becomes attenuated to such a degree as to be insufficient to open the valves, no further exhaustion can take place. The air-pump invented by Mr. Bickle is designed to obviate this imperfection, and is constructed on such a principle, that supposing the workmanship to be good, and the joints tight, there is (the inventor states) no limit to the amount of exhaustion to be obtained by its use. The description of the air-pump would scarcely be intelligible without the working model; but the main peculiarity is, that there is no valve between the receiver and the cylinder.

IMPROVED BAR COMPASS, by C. F. BELLOWES.—This instrument possesses a self-adjusting graduation, by which it may be set without the usual application of rules, &c. It is capable of striking a circle of more than 20 in. diameter, and possesses the advantage of always keeping the points perpendicular, which is not the case with common compasses. There is a centre point for striking a circle round a hole with precision. The instrument can be adapted to various purposes, as the head will receive pencils, or steel points for marking metal, or knives for cutting leather washers.

DIVIDING-ENGINE, by ALFRED PHILLIPS, of Camborne.—A large circular plate in the centre is divided into 720 half degrees (one to each tooth), and a small bevil-edge plate on the end of the screw, by which the plate is turned, is divided into minutes. To mark a degree in the work to be divided, two turns of the screw are requisite for one degree, one turn for a half degree, and one-sixtieth for a minute, as shown by an index on the edge. The flat side (an invention by Mr. Phillips) is worked by a rack underneath, which engages in the teeth of the circular plate. This slide enables us to divide scales, rules, and other straight work; whilst the circular plate is for protractors, or any curves or arcs, being designed for the circle only. There are tightening screws, or nuts, which act on the bearings of the dividing screw, by means of which the working parts are constantly kept in truth, notwithstanding the wear to which they are subject.—*West Briton*.

FOREIGN INTELLIGENCE.

CALIFORNIA.—By the arrival of the *Medway*, Royal Mail steamer, we have intelligence from California a fortnight later than that received *via* New York. The American steamer, *Empire City*, sailed from Chagres for New York, having 50 passengers from California, and gold-dust from San Francisco, said to the amount of \$1,000,000. She had taken out 200 passengers for California, and 400 were waiting at Panama for passage to San Francisco. Every ticket by return steamer had been purchased at \$300. The steamer, *California*, arrived at Panama on the 25th August, in 21 days, from San Francisco, bringing 51 passengers and about \$500,000 in gold. Considerable alarm had prevailed in San Francisco, in consequence of a riot which had taken place on the 16th of July. Seventeen men were arrested, and tried before the Alcalde and two gentlemen selected by the people, on charges of robbery and attempts to commit murder; the ringleaders were convicted, and sentenced to hard labour in such penitentiary as the Governor may direct, with fines of from \$250 to \$1000 each. The accounts from the diggings are to the 22d July. Provisions were plentiful in the mines, and dry goods could be obtained in Sacramento at San Francisco prices. Very rich deposits of gold have been found on the north fork of the American river. The daily average per man was about an ounce of gold. The general health remained good. The only article of commerce which maintains a high price is timber, which obtains \$800 per 1000 ft. Gold-dust continued to come in, but not in sufficient abundance as to reduce the price; it was worth \$154 per oz. in exchange for specie, but circulated at \$16. The correspondent of the *Times* states that a great over-supply of merchandise still existed, and was continuing to increase by fresh arrivals until the markets were glutted. He further says—"The price of land for house and warehouse sites continues enormously high, and rather increasing than otherwise. Rents keep high in proportion. The town is increasing rapidly, houses springing up like mushrooms. A few years, at the present rate of progression, and San Francisco will be the largest city on the Pacific. Already its port numbers a larger fleet of merchant vessels than any other port this side Cape Horn. The expense of living is enormous, there being nothing like it in the world. From the El Dorado of this country, the recent reports continue to confirm the previously-formed opinion, that the quantity of gold is incalculably great; its existence over a vast tract of country, extending for several hundreds of miles, being fully established by travellers of credibility who have lately made journeys in the interior. I have conversed with several gentlemen, some of whom I have known in other parts of the world for years, just returned from the gold regions, and must believe their reports on the subject. They all agree in assigning to the country vast, if not inexhaustible, wealth in gold." Some unusually large specimens of gold have been brought to San Francisco; one large lump, weighing 143 lbs. troy, is said to have been purchased by the house of Barron, Forbes, and Co. for \$3560, as a present to the Queen. It is an irregular slab, one side of which is pure gold, and the other quartz, weighing about one-third of the whole, streaked with veins of gold; it is 63 in. long, and 52 in. broad. Another specimen, weighing 7 lbs. 10 ozs., was raffled for \$1500. These large specimens obtain more than their intrinsic value as curiosities. The total number of men employed in gold-seeking were estimated at 25,000. The want of judicial authority had been so seriously felt, that a municipality was to be appointed, to be composed of respectable citizens, disposed and determined to preserve order, and the election was to take place on the 1st August. A corps of volunteers was also being formed, to preserve some degree of security against the outrages of the mobs of suspicious characters, who are flocking in from all quarters. A great deal of indisposition prevailed, arising from the effects of the variableness of the climate, which is the most disagreeable on earth. The mornings are generally foggy, the afternoons frequently hot, and always windy, and the nights bitterly cold in the height of summer. Dysentery is very common, from which complaint some deaths have taken place. Pulmonary complaints are also common, and persons arriving at San Francisco from the interior, which is very hot, are very subject to both dysentery and pulmonary complaints, arising from the great change of climate.

We extract the following particulars from the *Times* of yesterday.—

"The last accounts from California indicate that all the parties now engaged in mining will have opportunities of retaining the produce of their labour, and of returning home with considerable savings. The average yield is uniformly spoken of as an ounce per day, and as provisions and clothing are at present cheaper at San Francisco than in England, there is nothing to prevent those who may preserve their health, and escape plunder from leaving with a handsome balance. The number now estimated at the mines appears to be 25,000, and, consequently, the monthly produce ought to be between 2,000,000 and 3,000,000 sterling. Making allowance for exaggeration, and also for the probability that this rate of produce can only be obtained during a few months of the year, it is sufficiently large to lead to the supposition that distinct effects will be observed when the season closes, and the miners return to San Francisco. It must be borne in mind, also, that the present number of workers will be largely augmented every month. In July alone no less than 3614 persons arrived at the port, of whom about 3000 were Americans, to say nothing of the influx by the overland route, and it is known that the main portion of the best class of emigrants are yet on their way from New York and the New England States, *via* Cape Horn. It is further to be recollected that, although it has not yet been proved in a single instance that the general accounts received from California have been otherwise than correct. If exaggeration exist on any point, it is most likely to be with regard to the numbers engaged, since all estimates of a scattered population are usually found, even when there is no intention to deceive, to be greatly beyond the actual total. At the same time the emigration of which we have had accounts would seem to warrant the expectation that the body of persons at the mines can hardly be less than what has been stated.

"The following extracts of a letter from San Francisco will prove interesting, as it conveys a new fact regarding the prolific nature of the general soil of the country, and also an account of the climate of the Bay, different from the usual representations. It is from a son of one of the most influential and upright of the public men of the United States, and is of a later date than any other advice, having been posted at the last moment before the departure of the mail:—

"While I was walking towards the Post-office yesterday, I saw people kneeling down in the streets, employing their leisure time scraping gold out of the dust with their jack-knives. Twenty or thirty men and boys, who had no other employment, were each getting as much gold out of the very dust of the streets (not gold which had been accidentally scattered there, but the true gold of the soil), in the course of an hour or two, as a man could earn at home in a day. I find the climate here all my fancy painted it, and more. There is a sort of life-giving, energy-inspiring, air about the Bay of San Francisco that you can scarcely conceive. I have now been here nearly a month, living constantly out of doors, and sleeping half the time without any shelter whatever. At home you would call this great exposure, severe hardship. True enough it makes one appear rough and wild; but I think it gives a foundation for a constitution that no other life can. I have not been idle a day. My first movement was to buy a boat, and go to work getting my necessities ashore; and, after I had pitched my tent, I pursued the occupation of boating, getting more gold than my expenses amounted to. I have taken a trip up the Rio Sacramento, and carried up several passengers. I made it answer the double purpose of a small profit, and of satisfying myself at the same time that the glorious valley of the Sacramento was no place for me to live in. The land abounds with trees, and the river banks are shrouded in a luxuriant growth of vines and shrubs. Salmon abounds in the river, ducks upon its surface, deer upon its banks, and there are a thousand other things which, combined, form a beautiful picture. But it has its shadows. The air seemed to me to be confined, and loaded with an odour of decayed vegetable matter. We could scarcely go on shore on account of the mosquitoes, and the sun blazed down so fiercely as to peel the skin from our faces. Dysentery prevails, and one of our party nearly died from it."

Direct intelligence has been received from Melbourne to the 2d June, and by the same opportunity the accounts from Van Diemen's Land extend to the 28d May. We hear nothing further from Melbourne on the subject of the recently reported gold discoveries in the Pyrenees. In business everything was quiet.

SOUTH AUSTRALIA.—Advices from Adelaide, to the 28th May, have been received. The Custom-house returns, for the first quarter of the present year, show a progressive increase in the export of products of the colony. The total exports amount to 153,957l.—of which 77,578l. were in wool, 57,517l. in copper ore, 5313l. in tallow, 8884l. in wheat, 2097l. in flour, and the balance made up principally of provisions. The total imports consumed in the colony for the same period were 130,332l.—thus giving a balance of 23,025l. in favour of exports. The total quarter's arrivals of emigrants had been 2430 men, 1167 women, and 1091 children; and the total departures 517 individuals.—The following vessels had arrived from England:—The *Stebonheath*, with 373 free emigrants, last from Plymouth, 31st January; the *Ancient Briton*, from Newport, 22d December, with one passenger; and the *William Hyde*, from Plymouth, 28th January, with 104 passengers; the emigrant ship, *Susannah*, 514 tons, with nine cabin and 216 steerage passengers, as also the brig, *Sarapita*, 330 tons, from Swansea, with cargo and one passenger; the *Susannah* had a fine passage of 101 days from Plymouth, during which three deaths and three births occurred. Mr. J. W. Parker, the manager of the Adelaide City and Port Railway Company, formed in London, with Mr. Cartwright Hill, the engineer, had reached their destination, and operations would be forthwith commenced under their superintendence. To carry out a similar undertaking, another company was formed at Adelaide; and in order to avoid a clashing of rival interests, so fatal to all undertakings of the kind, a junction of the two companies is proposed, and it is to be hoped will be carried out. The receipts of the proposed railway, it is estimated, will amount to 15,000l. per annum, which, after allowing 40 per cent. for working and other expenses, will leave 9000l. to be divided amongst the shareholders. Burra Burra mining shares, after fluctuating between 157 and 166, steadily maintained the latter quotation. Adelaide, 1l. 10s.; Belvidere, 5l. 5s.; Enterprise, 4l. 15s.; North Kamunda, 1l. 8s.; Mount Remarkable, 10l. 10s.; Port Lincoln, 5l. 5s.; Princess Royal, 21l.; Provincial (3d paid), 3l.; Royal Mining Company, 7s.; Wheel Gwiler, 17l.; Wheel Grainger, 7l. 10s. No further mineral discoveries of importance had been made in the settlement.

The *Port Philip Argus* says—"The gold-finding affair in Australia Felix is as much a reality as the famous Barro Burra. Respecting the Port Philip gold field, Mr. P. Roberts, of Asgrove, Van Diemen's Land, writes in the following terms to the *Launceston Examiner*:—"From communications, I have no doubt of the existence of perhaps the richest gold mine in the world at Port Philip. It at present appears to be a diluvial deposit, aided by an upheaving of the earth. How long this gold mine has existed it would be folly to surmise; but the lapse of ages must have occurred since the formation of the Pyrenees, and it follows that the washings of the mountains must have caused, at the foot of the mountains, very considerable deposits. I believe the gold at California was discovered by the cutting of a mill-dam by a gentleman named Sutter; and I have been told on good authority, that the gold deposits at California are 7 or 8 ft. from the surface; and it is said the whole surface is diluvial. Will it, therefore, not be wise in some of the settlers, living at the foot of the Pyrenees, to bore to the depth of 10 or 20 ft. Why should not Port Philip have gold beds as extensive as California, since gold has been found in pieces as large as from 1 to 144 oz.? I copy this letter from a gentleman, who says he has had the pieces in his hand, and that one individual had procured as much as 8 lbs." The exploration of a coal vein at Lantitt Bay continued to attract attention, and exploring parties were on the spot. As a speculative investment, the district was regarded with some consideration. Although the Government had not yet published any official confirmation of the intelligence, the fact of the existence of the mineral is strongly asserted.

MANUFACTURE AND APPLICATION OF GAS.

[Specification of patent granted to Stephen White, of Victoria-place, Bury-new-road, Manchester, gas engineer, for improvements in the manufacture of gases, and in the application thereof to the purposes of heating and consuming smoke; also improvements in furnaces for economising heat, and in apparatus for the consumption of gas, dated March 26, 1849.]—*Mechanics' Magazine*.

This invention relates principally to the construction and arrangement of apparatus for the production of what is termed water gas, and which was the subject of a former patent granted to Mr. White. This gas is composed of a combination of carburetted hydrogen gas, with hydrogen gas and oxide of carbon gas—the result of the decomposition of water by contact with charcoal, coke, or anthracite coal, mixed with small particles of iron or lime, heated to a high temperature.

The apparatus first specified is constructed of a material capable of bearing the greatest heat that can be obtained (white red), and consists of two vertical retorts placed in an oven over a furnace. Inside each retort there is a flue which communicates at bottom with the furnace, and at top with the oven. The products of combustion ascend the flues, and pass into the oven, so that the retorts and their contents are heated both inside and outside. They are filled with small pieces of charcoal, coke, or anthracite coal, and thin plates of iron or pieces of thin iron wire, and their covers at top, by which these materials are introduced, luted, and securely fastened down, so as to render them perfectly gas-tight. Water is caused to fall in a succession of drops, or in a small stream, into syphon pipes, which conduct it on to the top of the materials through which the gas thus generated descends to the bottom of the retorts, whence it escapes into horizontal retorts (also placed in the oven), and there meets and mingles with carburetted hydrogen gas, which is generated in the following manner:—A quantity of resin and oil, or of tar or fat, or other substance rich in carbon and olefin gas, is melted in a vessel, fixed on the top of the oven, and allowed to flow in a liquid state into the horizontal retorts, which are each divided into two or more compartments, by horizontal partitions extending nearly to the end. These compartments are filled with copper or iron chains, or pieces of wire twisted into a spiral form, so as to offer a heated and partial resistance to the passage of the gas to the hydraulic main. When pit coal is employed instead of resin, as the hydrocarbon, it is placed in the horizontal retorts, and the employment of the other parts of this branch of the apparatus dispensed with, care being taken to allow sufficient passage for the gas resulting from the decomposition of water, to mix with the bi-carburetted hydrogen gas produced by the distillation of coal.

The chains are to be occasionally taken out of the horizontal retorts, for the purpose of freeing them from the carbon which may adhere to them. The proportion of iron to coke in the vertical retorts should be as 1:6, and the quantity of materials in the vertical and horizontal retorts should be so regulated with regard to one another that the proportions between the volume of the gas evolved by the decomposition of water, and that of the gas resulting from the distillation of coal, may be as 4:6. The gas should be tested in its passage to the gasometer by a test-burner; and if it burns with a bright smoky flame, more water should be supplied to the vertical retorts; but if it burns with a faint blue flame, then more of the liquid hydro-carbon should be supplied to the horizontal retorts.

2. The patentee proposes to manufacture oxygen gas for illuminating purposes, by employing nitrate of soda or of potassa. Two or more detached moveable crucibles, partially filled with either of these materials, are placed in a retort, which is heated in the ordinary manner. The number of retorts employed may be varied according to the wish of the operator and the capacity of the oven. The oxygen and nitrous fumes disengaged ascend into the hydraulic main, which contains water or lime-water. The oxygen is conducted to an apparatus where it is freed from aqueous particles, and thence to the gasometer. The nitrous fumes are absorbed by the water in the main, and form nitric acid, which is drawn off as may be deemed necessary. The residua in the crucibles form carbonate of soda or potassa, according to the substance first used, which are valuable as articles of commerce; or they may be treated with nitric acid diluted with twice its volume of water, after which the water is to be evaporated. The residua will be either nitrate of soda or potassa, which may be used again. The improvements in heating and consuming smoke, consist in causing currents of the water gas, and of atmospheric air or oxygen to meet and burn in a suitable vessel, or behind the bridge of the furnace.

Claims.—1. The mode of combining and arranging the parts of the apparatus, to extend the heating surface in contact with which the generation of carburetted hydrogen gas, and its combination with the hydrogen gas and oxide of carbon gas, take place.—2. The mode of manufacturing oxygen gas by exposing the materials from which it is to be obtained to heat in detached and moveable retorts, of suitable construction, heated in the ordinary manner.—3. The application of gas evolved by the decomposition of water combined with atmospheric air or oxygen to produce heat, or with atmospheric air to consume smoke, by a current of it being directed into the flues through which the smoke passes.

A SUFFERER FROM SEVERE DEBILITY AND SHATTERED CONSTITUTION CURED BY HOLLOWAY'S PILLS.—Mr. Reintjes Van Voerssen, a merchant, residing at Nymegen, in Holland, had been suffering for years from a general debility, his strength had become so prostrated that he was quite incapable of attending to any kind of business, his constitution was rapidly giving way, notwithstanding the efforts of the cleverest medical men to arrest the decline; at this crisis he commenced taking Holloway's pills, and by their use his health and strength are perfectly re-established, in gratitude for which blessing, he desires that publicity may be given to it, that others may seek relief by the same means.—Sold by all druggists, and at Prof. Holloway's establishment, 244, Strand.

THE ASTURIAN MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—The affairs of this company have been lately brought so prominently before the public that it may interest many of your readers if you will permit me to give a short general description of their property. If I thought that the mines in the Asturias were destined to be nothing more than a matter of command, I should not trouble you on the subject; but, believing as I do that they are capable of so extensive a development as to cause (as has been the case in Wales, which in many respects resembles the principality of the Asturias) an entire change in the social condition and importance of that country, I cannot but regard them as being of much more general interest. The property of the Asturian Mining Company is situated in the most northerly part of the extensive mineral basin of the north of Spain, and their coal mines are the nearest of any to the sea-coast on the Rivers Nalon and Caudal, which, after running through the richest parts of the coal-field for a distance of from 20 to 30 miles, combine their waters at Barco de Soto, a mile or two below the northern limit of the mineral basin. At Tudela, on the banks of the River Nalon, the company have a grant from the Spanish Government of about 450 acres of land, the highest parts of which are about 1400 ft. above the level of the river; the strata lies, as in Wales, at an angle of 30° to 40°, and the hills are literally brimful of coal. At Mieres, on the River Caudal, they have, I believe, about 800 acres of equally rich coal land; and here are situated the iron-works, of which the only complaint is, that they have been too expensively constructed. A cross-drift at this point, which was commenced five years ago, will, in a distance of 1700 yards, cut through 30 workable seams of coal, many of which have been traced throughout the distance of 6 miles from Mieres to Tudela. Taking a mean height of 800 yards for the range of hills lying between Tudela and Mieres, the number of seams of coal at 30, and the average thickness 4 ft., the quantity of coal above the level of the rivers between these two points would be upwards of 120,000,000 tons. The working of this amount of coal would cause a distribution of 15,000,000 among the labourers who extract it; and, if one-half of it were used in the manufacture of iron, it would cause the circulation in the country of 120,000,000. This district is, moreover, not more than 1-20th part of the whole coal-field. Iron ore of all qualities is also found in the surrounding mountains. It is, therefore, an undoubted fact, that the Asturian mineral field contains more coal and iron than can possibly be consumed by all Spain for centuries to come; and it is only requisite that the means of transport should be rendered less costly than they are at present for a large commerce to be established with the manufacturing provinces of the south. When it is remembered that, 60 years ago, the means of transport in Wales were precisely similar to those in the Asturias at the present day, and that by gradually increasing the facilities of transport—first, by canals, and then by railways—the exports from the former, of coal and iron, have increased from an annual value of a few thousand pounds to the extraordinary amount of nearly 5,000,000, in the year 1846—viz.: 500,000 tons of iron and 1,300,000 tons of coal. In the year 1843, it was estimated by Mr. Booker, at a meeting of the Cardiff Chamber of Commerce, that the annual consumption in the works, collieries, and districts connected with Cardiff alone, amounted to 1,000,000 sterling, half of which was earned by the miners and workers in iron. I cannot but conclude that, with proper management, the principality of the Asturias may, in the course of a few years, be raised to a position of far greater importance than that at present held by any province of Spain; and it will be a subject of proud consideration if, by taking the initiative in Asturias, Englishmen can boast that they have kindled a spirit of enterprise in Spain, which shall eventually restore that once-powerful country to its natural position in the scale of nations. And it is certain that they will, at the same time, have greatly benefited English interests, if we use that term in its more comprehensive sense; for although at present it is English coal and iron which supplies the limited wants of manufacturing Spain (notwithstanding the very high import duty imposed), and although it is necessary for the prosperity of Asturian mining enterprise that the produce of these Spanish mines should supersede all other like produce in Spain, yet, on the whole, the increased demand in that country for English labour and machinery, and the augmented market for English manufactures consequent on the employment of the people and circulation of capital, combined with the greater political influence which would certainly be acquired by the more frequent intercourse between the two nations, will fully compensate for the loss that would ensue to the Newcastle coal merchants. Let us, however, bear in mind that it is not by lamentations over past misfortunes, and that false economy which, at a moment when ruin is imminent, beguiles every possible further expenditure, because the company has been extravagant, that any great results can be attained. I rejoice to see that the Committee of Investigation, whilst it has wisely determined to keep the company clear of all dependency upon, or association with, irresponsible and unknown foreigners, has boldly asserted the necessity of a further call being made on the shareholders to extricate the company from its present difficulties. Whatever may have been the mismanagement so generally attributed to the directors (and I believe none of the present directors are charged with more than that), they were not unreasonable in supposing that a railway would be made by some one of the different companies which were formed for that purpose; and much of their embarrassment has arisen from the non-fulfilment of their hopes; for, with the exception of the little coal required in the iron-works, and the comparatively insignificant mines of Santo Firme—the coal mines whilst they are a constant expense to the company—are at present entirely unproductive, the cost of carriage to the sea being such as to preclude the possibility of exporting any coal; whilst, at the same time, it materially diminishes the profits that might be made on the produce of the iron-works. At present, the lowest price paid for carriage from Mieres to Gijón (1½ per ton) would, if the company made only 100 tons of iron per week, amount to 3200 per annum, or 20 per cent. on the present value (quoted Sept. 29, 2½ 10s.) of the stock.

But, now that it appears impossible that the necessary capital for a railway can be raised, the most important consideration is, whether some other means of conveyance cannot be devised, not requiring a great expenditure of money. In Wales, and elsewhere, the first means adopted for transport has always been by water-carriage; and, if the position of the Asturian Mines will allow of it, it is both a more economical and more appropriate mode than to make a railway, which would be dependent upon a traffic that it has to create for itself. This would especially be the case if the rivers themselves are by any means navigable; for then the condition so much required—viz.: the dispensing with capital—would be at once simply attained; and, although the usual means which are adopted in navigating rivers may not answer in this case (and this would account for no attempt having been hitherto made to utilise the waters of the rivers), with a little ingenuity, I am certain that peculiar vessels might be constructed which would make the navigation perfectly feasible.

Let then the Asturian Mining Company commence, as others have done in similar cases; and when they can show clearly that the produce of their mines and works would suffice for the traffic of a railway, they need have little fear that a railway will speedily be made. I will venture to predict that, when that is completed, the commercial importance of the Asturias will increase with a rapidity such as no one can anticipate, and the Asturian Mines will speedily become an almost unrivalled investment for capital.—O. R.: Oct. 2.

THE ASTURIAN MINING COMPANY.

Sir,—I trust you will permit me to correct, through the medium of your columns, (without impugning the general accuracy or justice of your account), some erroneous impressions which I find have arisen from your report and observations in last Saturday's Journal, as to the meeting of the Asturian Mining Company, on the 25th ultimo. With the policy or apologies of Mr. Moore at that meeting, I am not called on to interfere; the former I considered unwise in bending to the influence of Col. Biré, who, though stating what was literally true, concealed that which he knew would have given a totally different version to his representations; and Mr. Moore was by far too polite in reserving those communications which would have justified him in denouncing Col. Biré's position before the meeting, in much stronger language than he used. But what I object to is, that it has been inferred that the charges, stated by Mr. Moore as affecting the past management, and with respect to Colonel Biré's implication in one of the principal delinquencies, are all weakened by his apology upon an immaterial point, respecting Col. Biré's knowledge of Capt. Goffinet. This was literally true, perhaps, although these gallant officers, both from Belgium, stopped at the same hotel, and came to the meeting with their comrades in compact array—the Col. leading, and the Capt. bringing up the rear, and voting in wondrous unanimity, without understanding a word of what was said.

It is unnecessary to discuss the charges *seriatim*. Mr. Moore was forced to state them in language within the truth—there can be no extension, much less denial of them. Contrary to my opinion, Mr. Moore influenced the committee to reserve them for private discussion. But the directors having brought the gallant Colonel into the field against the committee, to force an imprudent and improper contract against the recommendations of the committee, when the *casus belli* was disposed of by the extraordinary refusal to ratify on the part of M. Grimaldi, to whom the treaty was ostensibly so favourable, these directors could not, as in many more remarkable instances, control their ally; and, accordingly, he endeavoured to annihilate the investigators, who had dared to ask for modifications and explanations. Now, I must remark that the ire of the Colonel appears no less extraordinary than M. Grimaldi's conduct, especially as our attention has been called to one of the effects of Colonel Biré's negotiation—viz., that the original bonus asked by Mr. Grimaldi, was raised, after M. Biré became the delegate of the company, from 15,000 to 35,000, the difference being a sum equal to that paid (at 10s.) on—say 2000 of his shares, as stated by him, the exact number standing in his name being 1505, according to the books.

Be that as it may; the actual facts respecting Col. Biré's transaction in these shares, the question at issue between him and Mr. Moore, is not at all affected by the explanation given; for would you believe it, that one of the directors was, from the 19th of June, 1844, to the 15th of January, 1845, the irrevocable delegate, in fact, of the board of directors—as to the issue of shares; therefore, the Colonel was coerced to treat with him, and, consequently, in stating what was literally true, he must have been conscious that his contradiction of Mr. Moore substantially merited the epithet with

which he characterised the entries in the company's books; for from those the facts were collected. In a word, from what has passed at the meeting, and what has since transpired, I have no doubt Mr. Moore will be enabled to keep his pledge, so far as Col. Biré's shares are concerned, that no fair duty, or responsibility, can be evaded with impunity. And here I am obliged to protest against your opinion that Col. Biré was badly used at the meeting. He denied that he had ever seen Captain Goffinet. He had not the hardihood to deny that he had packed the meeting; in fact, no one could doubt that looked on impartially; and observed how promptly his adherents followed their gallant colonel! I was much amused on one occasion, when their movement was somewhat tardy, to see how his look rebuked them. I am justified, then, in saying the meeting was packed; and, if so, I should like to know, if such a course could be tolerated, or palliated, would it not be competent for a Hadam or a Biré at any time, to crush the independence of every company? I do not speak of the decision of the chairman (who, I believe, acted conscientiously in declaring the motion carried); but could he, I ask, in any fairness, give a scrutiny to Col. Biré, when he refused to let Mr. Moore, especially as many had left the room, deeming the question settled? For my part I do not think such a result unjust when it tends to effectual justice; and, where Col. Biré came to overawe the committee, and mislead the meeting, it is surprising Mr. Moore yielded as far as he did, instead of allowing the consequences of an intrigue to recoil on the directors themselves.

Another so-called explanation appears, by the report, to weaken another charge, though perhaps, in the confusion my denial was unheard at the time. It was stated that there was a registry at Oviedo, though there was none here at the time the statutes were passed. This is not the truth, for there was no existence for the company in Spain till the document passed here on the 19th Nov. 1844, had been afterwards approved in Spain; besides, it was not of the public registry in Oviedo, that there was any question, but of a registry of shares in the company's books in the office in London. But all proceed with the other charge, which I am obliged to protest against your opinion that Col. Biré was badly used at the meeting before the public; but I beg it may be distinctly understood, that I do not join in Mr. Moore's exculpation of certain of the directors. He makes a distinction between legal and moral responsibility, and absolves them of the latter. Yet it is not plain that, whoever shares the plunder, if I am forced to pay my money under unexampled pressure, such as the late financial difficulties caused, to support a scheme based on fraud, they who have the opportunity of detecting, exposing, and punishing the guilty, and fall to do this, are equally culpable as the directors by deluding the victims who innocently mislead, like those that have induced the Asturian shareholders to pay down their hard cash year after year, with no other effect than to accumulate barriers against their own vindication? Where, then, is the moral innocence of any of the original directors? I contend that all of them are both morally and legally responsible, however late it may be to have ascertained the truth.

I shall only trespass further, to exonerate the committee of investigation from the obligation which they are liable from the position of some of its members. Three of the members had, previously to the nomination of the committee, been appointed liquidators—that is to say, to assist in winding-up. Now, these liquidators entered into engagements with the creditors of the company, on the faith of the directors concurring in certain arrangements, which could not be secured without virtually superseding the directors; and, being justified, it is unnecessary to say how far, in actually relieving those gentlemen from their functions, it was not too much to ask them to leave the affair in other hands when they proved and acknowledged themselves to be wholly incompetent. Still, if you desire an explanation, I shall submit one that you will receive as satisfactory, proving the perfect legality and propriety of the measure in Spain and in this country as clearly as ever was shown a necessity for appointing a committee for a lunatic. The question of investigation is totally distinct from all this; and the committee is acting in discharge of duties in no wise inconsistent with those of liquidators. The committee does not sit as judges, but as prosecutors, if guilty there be; and every individual in the company is bound to protect its credit, and to discharge its duty to its creditors, by every means in its power, and to discharge its duty to its creditors, by every means in its power, and to discharge its duty to its creditors, by every means in its power.

MINING NEAR TAVISTOCK.

Sir,—Having been informed of a very good tin lode being discovered in the parish of Lydford, near the Dartmoor Inn, adjoining the main turnpike-road, leading from Tavistock to Oakhampton, in a mine called Wheel Mary Emma, I visited the spot, and was permitted to inspect it by one of the proprietors, who holds one-half of the mine. There are two lodes within 40 fms. of each other. The south lode has been opened on about 80 fms. in length in the side of a hill, as well as many pits sunk on its run, half a mile to the west of the old workings, by the ancient tinners; it is very evident the lode is regular the whole of the distance already explored, as its character to the extreme points seen are analogous with each other. I think the lodes form a junction about 160 fms. west of the workings, as the north lode has a more westerly direction than the south one, the latter going on an angle of 40° north of west, and the former 30°. The present proprietors have sunk under the old works, merely to ascertain the properties and size of the lode. The tinstuff brought from the sink is very good, producing large grains or cubes of tin, from ½ to 1 in., interspersed in the lode, with a leader on the north part 6 in. wide, very rich. The water being an impediment, they have judiciously taken up an adit level about 30 fms. to the east of the sink, which will give them 10 fms. of backs, when it is being driven under the sink alluded to. The surface rises very fast, going west; I should think, before the present level is driven 60 fathoms, it will be nearly 30 fathoms deep.

In driving the adit 15 fms. the lode is become very settled, altogether 2 ft. big, walls regular, and the leader on the north part 6 in. wide, and will produce 4000 lbs. to every 100 sacks, with cubes of tin on the south, and mixed through the lode, similar to what has been taken from the sink, 15 fms. to the west, and 10 fms. above. This new little mine is likely, ere long, to become a large and profitable concern, as the facilities for working it are rarely to be met with—a good supply of water to work machinery almost to any extent, or, at least, as much as may be required for a mine at a very considerable depth, having 20 fms. of fall if requisite. It is really a splendid discovery so near the surface, and one that ought to be prosecuted with great vigour.

Wheel Anderton Mine, Oct. 4.

JAMES CARPENTER.

SOUTH WHEEL JOSIAH.

Sir,—Seeing reports and communications of late in your valuable Journal relating to South Wheel Josiah Mine, on my visiting the neighbourhood last week, I went to see it. The locality is well known to many of your readers, and to a miner the advantages held out in working the sett are apparent. The lode is of a good size, running into the hill. The adit level is driving on its course; and the ore discovered appears as if it was the top of a branch, being not many fathoms below surface. Capt. Hambly informs me that water from the Tamar can be had, if required, to work a wheel; and, upon the whole, considering the little expense at present incurred, and that will be required to work the mine, with the present indications on so little work done, it appears to me that such a speculation is rarely to be met with. For parties who have capital to chance in mining adventure, there are few places where such good results may be expected from so little outlay.—A CORRESPONDENT: Oct. 2.

SOUTH WHEEL JOSIAH MINING COMPANY.

Sir,—Since my last report to you on this mine, we have driven through a little bunch of ore, which, when the end is sufficiently far on, we shall set on tribute; the lode at present is about 2 ft. wide, rich in mundaic, which strongly indicates that we shall soon have ore again; the ground is moderate for driving. I do not expect this bunch of ore to last up far in the back. We are now about 12 to 15 fms. below the surface; but I suppose it to be the upper or top part of a bunch of ore, that may last down to a considerable depth. Though the ore is so shallow, we dare not say it will not do so; and I believe it requires more wisdom than our friend, "Jacobi Vox," possesses, to say whether it will or not. But I believe, at Wheel Maria, or Devon Consols, they went down about 16 or 17 fms. before they had ore; and you will allow me to say, that this great bunch, which was I suppose never equalled in this county, had a back, or top part, when it was even much smaller than the bunch we have just driven through; therefore, I do not despair of raising large quantities of ore from the bunch referred to in depth.—JOHN HAMBLY: Oct. 4.

ACCIDENTS.

Yatalyera.—Richard Daniel was severely hurt while cutting off the end of a hand-bar in the smith's shop. The bar bounded, red hot, from the anvil, and unfortunately struck into his thigh. The unfortunate man applied both his hands to the seething bar in trying to withdraw it, by which he burnt them in a shocking manner.

The Boiler Explosion at Burnley.—We gave in our last a brief account of the frightful casualty which occurred on Tuesday week, by the bursting of a boiler at Mr. Slater's mill, Sandy Gate, near Burnley, and stated that two persons had been killed, and two others severely injured, that they were now expected to recover. We regret to add that the loss of life was greater than we mentioned—three persons having died on the day of the explosion from the injuries received. Inquests were held on the bodies on Friday morning before John Hargreaves, Esq., the coroner. After a lengthened inquiry, the jury returned a verdict of "accidental death" in each case. They added that they exonerated the boiler maker from all blame, but recommended a stronger construction of boilers in future; they recommended the engineer to take care that in future the peg, indicating the pressure, should be of proper length; and they recommended to all millowners that boilers should be placed in separate buildings, over which no persons should have access.

Extraordinary Explosion of Fire-Damp.—A curious though serious case of explosion of fire-damp, or gas, occurred on Sunday last, in a house in Gildow-lane, Wigan. On Sunday night a messenger was dispatched from the house in question to Mr. Winnard's surgery, and it was stated that a Mrs. Crook had been severely burnt by an explosion of gas in the cupboard. Mr. Winnard was absent at the time, but Mr. Hutchinson, a medical gentleman from Liverpool, who has been engaged to assist Mr. Winnard during the prevalence of the epidemic in this township, was in attendance, and it is said that he received the statement of the messenger with an amount of incredulity, which is only to be accounted for by his inexperience in a colliery district. A woman burnt by an explosion of gas from a cupboard—he could not believe it! However, he proceeded to the house, where he found Mrs. Crook in great suffering, having been severely scorched about the face and neck. It was stated that she was going to the cupboard with a lighted candle in her hand, when the terrific explosion of fire-damp took place. Mr. Hutchinson, it would appear, was still "hard of belief," and Crook, the husband of the woman who was injured, asked him if he would wish to see a repetition of the explosion, stating that it would be attended with no evil consequences. Mr. Hutchinson assented, and we may be sure that he exercised no small degree of caution when the cupboard was opened, and the light applied. Crook, however, was unfortunately less apprehensive, and a tremendous explosion taking place, he received a serious burn on that very sensitive organ of the human physiology—the nose. The people in the house screamed, and the greatest consternation prevailed. It is stated that the body of flame ran along the ceiling, and escaped out at the door, but Mr. Hutchinson says that he did not observe the phenomenon. We should state, for the information of those who may be unacquainted with the locality, that the house is situated immediately over a coal mine, and a gas shaft have made its way through the earth into the cupboard. The woman, we are sorry to say, is still in a very precarious state; but Mr. Crook's nose is, according to the last report, in a state of convalescence.—Wigan Times.

RUNNATFORD COOMBE TIN MINING COMPANY.

At the eighth general meeting of adventurers, the accounts were examined and passed, showing—Balance in hand last account, 1664 8s. 3d.; calls, 4312 9s.; sale of tin (3 tons 15 cwt. 1 qr. 1 lb., at 454 10s. per ton), 1711 4s. 3d.; 7692 1s. 6d.—By labour cost, July, 2382 18s. 4d.; ditto August, 2381 8s. 4d.; lords' dues, 112 8s. 3d.; leaving balance in bankers' and pursers' hands of 3152 9s. 7d.—It was resolved, that the committee proceed at once to the recovery of all back calls in the best possible way.—A call of 8s. per share was made, and the following report, from Capt. J. Chenhall, was read:—

Sept. 21.—In presenting my report, I beg to state that the ground in Morris's shaft is still hard, but the water is not so quick; and if the water does not increase, we shall be enabled to sink to the approaching level without the aid of steam; there are about 5 fms. of the same sunk below the adit level, sinking by twelve men, at 21½ per fathom. The ground in the north cross-cut is much better, and there is every probability of getting very near the lode; there are about 7½ fathoms driven, by four men, at 4½ per fathom. I have set the backs of the adit level on tribute, by six men, at 13s. in 11. The sampling will be small, on account of the scarcity of water, as also the backs of the adit level being almost stowed away, and getting so near the surface; the lode is not so rich as when we first commenced stopping. In about two months Morris's shaft will be down, to drive to cut the lode, and there is every probability of cutting a rich and profitable one, from its present appearance in the bottom of the level, and of its returning large profits to the adventurers. The boiler is at the mine, and in its right position. We have commenced to take out the bob-pit near the shaft. The engine is expected at Tenness every day, on its way to the mine.

TRELEIGH CONSOLS MINING COMPANY.

The annual general meeting of shareholders in this company was held at the offices, Old Broad-street, on Wednesday last, the 3d inst.

G. B. CARR, Esq., in the chair.

The CHAIRMAN having read the advertisement convening the meeting, said it was with much pleasure the directors met the shareholders on that occasion, as the mine was in a highly improved state. They had not lately called quarterly meetings, as from the general depression in business, and the appearances at the mine not having been so promising, they thought they should be consulting the interests of the company by remaining quiet. He had no doubt they should now shortly resume their quarterly meetings, and he hoped, their dividends. There was now every indication of their possessing a valuable mine.—Mr. W. NICHOLSON (the secretary) then read the following

DIRECTORS' REPORT.

It will probably be remembered that, at the last annual meeting, allusion was made in the report which was then read, to the removal of Maria engine to the north part of the mine, called Wheel Parent. This, as you are aware, has been carried into operation, and some good ground has recently been laid open, which can be brought to advantage at the present standard. It is satisfactory to be able to state that, from the report received on Monday last, the lode in the 80, west of Garden's, continues to improve. The chief point of interest, however, in this part of the mine, and which is looked forward to with some anxiety, is the intersection of the lode under the elvan course. In sinking the shaft below the 113 fm. level, where the lode was large, but not sufficiently clear of the disordered ground, several branches, varying in size, passed through the shaft from the south, which, in all probability, have formed a junction with the north and main lode. The shaft has, therefore, been sunk to a depth at which it was calculated a cross-cut would take the lode below the junction—viz.: 125 fms., or 12 fms. under the 113, where the proposed cross-cut will shortly be commenced, to intersect the lode. Your directors, in conclusion, have only to refer you to the financial statement, and to congratulate you on the improved prospects of the mine.

The following report from the agent (Capt. Richards) was read:—

Sept. 29.—Although you have our weekly report, and a copy of yesterday's setting, I conclude you expect a few remarks from me as to general prospects. You are aware that we are not driving any level east of Garden's shaft, partly owing to this part of the mine being rather poor, but principally through North Downs Mine being idle, and, in consequence, a great quantity of water being against us, which would be improper to drain; but I am happy to state that our western levels, particularly the 80, are very much improved. We are now down to the 125 fm. level in Garden's engine-shaft, and wish your orders to drive the lode. Since your last meeting, our prospects at Wheel Parent have very much improved, and although the 30 is not so good as it was a few weeks since, I have every confidence in it, and hope in five or six weeks to see it at the 40. We have no great extent opened on this lode, but set a pitch yesterday at 2s. 6d. in 11. On the middle lode, our operations are as yet limited, waiting Wheel Parent shaft getting down to the 40, where we intend to drive a cross-cut. Our neighbours at What Mary have done well on this lode at the 40, and we have had good bunches of ore since the 1st. I beg to state that the mine has very much improved of late, and with the improved price of copper, I hope, in a few months, to increase our returns, and also to give increased profits.

The following statement of accounts was then submitted to the meeting:—

Balance last account	£ 680 10 0	Labour cost, 12 months	£ 4290 1 1
Orea sold	687 8 4	Merchants' bills	1925 12 1
Merchants' bills	18 18 8	Purchase of 6304 2s. 9d.	575 0 0
Sale of 673½ lbs. 1d., 3 per cent.	624 16 6	3 per cent. Consols	48 5 0
Dividends paid	48 5 0	Low charges and interest	10 1 0
Dividend and interest on ditto	33 14 6	Balance at bankers, ore bills, and petty cash	1783 8 1
	£ 8232 8 0		£ 8232 8 1

The report and accounts were then received and adopted, and a vote of thanks passed to the chairman and directors, when the meeting separated.

TAVY CONSOLS MINING COMPANY.

The bi-monthly meeting of adventurers was held on Tuesday last, at the Prince George Hotel, Stonehouse.—Capt. Macquarrie in the chair.—The statement of accounts on the debtor side, showed the balance from last general meeting (August 7) to have been 971 18s. 7d.; July costs, 1184 17s. 6d.; August costs, 1171 18s. 2d.; new charts, bills, &c., 224 5s. 1d.; total, 3512 17s. 4d.—On credit side, by call of 5s. per share, made Aug. 7, on 728 shares, 1801 10s. 4d.; cash for ore sold in July, 681 12s. 4d.; balance down, 1021 10s. 4d.—The pursers stated 2000 worth of ore had been sent to market within the last two months, part of which is now due, and the other part in a month, and as they were raising ore nearly to the amount of their costs, there was no necessity in making a call. Although they had not sampled so many tons in the past month as they had expected, they were in hopes of nearly paying their way. The captain's report was received and adopted, the committee re-appointed with thanks, and the bills passed. The captain, in his report, states that—

No improvement has taken place in the 46 fm. level since last meeting. There are about 10 fms. more to drive in this end before getting under the ore ground in the 34½ level. The south end on the cross-course continues to progress with fair dispatch towards the wheel-pit lode, and the ground remains favourable—price of driving 42½ per fathom. The communication from the 12 to the 24 fm. level has been completed, and the 12 fm. level continued to the west of the rise. In raising the last 2 fms. the lode became divided into two separate branches, having a horse of killas between them. The north part being most productive, was first driven on, and the first 2 fms. the lode was of the most promising character, but for the last 3 fms. the end has become poorer. In consequence of this the men have been put to drive south—driving by four men, at 6s. per fathom. The lode in the 12 fm. level is about 2 ft. wide, producing 1 ton of copper ore per fathom, driving at 3s. 10s. There are four tribute pillars working; that in the bottom of the 3 is still looking very promising, although not rich; the lode is from 5 to 6 ft. wide, interspersed with ore throughout. Two pitches are working at the back of the 24 fm. level by six men, at a high tribute, but it will prove the lode and leave some profit. The September ore has not yet been sampled.

WHEEL BASSET MINING COMPANY.

At the two monthly meeting of adventurers, held on the 22d inst., the accounts were examined and passed, showing—Copper ores sold; 32837 11s. 7d.; tin ditto, 3612 5s. 5d. (less lords' dues, 2422 19s. 9d.)—34017 17s. 8d.—By labour cost July and August, 16842 5s. 10d.; merchants' bills, 4812 10s. 2d.; leaving profit; 12367 0s. 8d.: to which add balance last account, 5684 0s. 8d.; and deduct dividend 10s. per share, 12804—leaves on hand to carry to next account, 5194 0s. 11d.—[We shall give the report in our next Journal.]

BALNOON CONSOLS.—A meeting of adventurers was held at the mine, on the 14th Sept., when the accounts for four months, ending July 31st, were passed, showing—Balance against adventurers of 2357 18s. 6d., to meet which, and for further prosecuting the mine, a call of 3s. per share was made.

ASHBURN.—We cannot report any improvement in this district respecting the various mines; very little is carried on at Owlcombe, Wye, Alston, Whilden, or at Holne Park, partly on account of the scarcity of water at Rummack Combe. The steam-engine will be shortly set at work, the lode of tin at this mine is excellent; at Buckfastleigh and Dean Mine, the works are stopped for the present; a dispute has taken place respecting the wages at Penn Becca slate quarry, between the proprietors and the workmen, who are chiefly from Wales, many of them are about to leave, and several fresh workmen from the Delabole slate quarry have been taken on. Haytor granite quarry is going on well, upwards of 150 men are employed, the granite is very superior.—Plymouth Journal.

We very much regret to announce the death, at sea, of Mr. Thomas Deakins, late agent at the Varteg Works. The deceased sailed on the 10th September from Gravesend, on his passage to South Australia, where he had an engagement as an engineer; but soon after entering the vessel, he was severely attacked by cholera, and died on the following day—his body was committed to the deep. He left a wife and four children, who were with him, to deplore his loss.

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—Field's engine-shaft is sunk 11 fms. 1 ft. under the 30 fm. level, and at this level we intend driving; the lode in the east end of the shaft is 6 ft. wide, 2 ft. of which is good for copper ore, and I think will yield from 2 to 3 tons of ore per fm., worth from 4l. to 5l. per ton; the lode in the west end of the shaft is about 4 ft. wide, containing a branch of copper ore from 6 in. to 1 ft. wide; the lode in this level having a better appearance than at any other under the adit level, I should recommend sinking under it as soon as it is convenient. We have every reason to believe from the appearance here that something very good is near at hand. The lode in the 50 fm. level, east of Field's engine-shaft, is about 3 ft. wide, and about 2 ft. of the northern part is saving work for copper ore—the appearance in this level are very much better this week; in the 50 fm. level west the men are cross-cutting south in a hard lode dredged with copper ore, and have not yet seen the south wall. The lode in the 40 fm. level is just as last reported, large and poor.

BARRISTOWN.—In the eastern adit end the branches are very small, and as the ground gets hard they seem to diminish; the lode in the back of the adit level is still without alteration, producing about 5 cwt. of lead per fm. In the rise in the back of the 16 fm. level, the lode is considerably improved, leaving good ore ground to stop; as soon as the rise is in the bottom of the adit level, which we hope to accomplish in four weeks, this will greatly increase our present quantity of lead raising. The lode in the bottom of the adit level, west of the old workings, is poor; in the rise in the winze sinking to the west of this, in the bottom of the adit level, the lode is very large, 4 ft. wide, with stones of ore only. In the 24 fm. level, east, west of engine-shaft, the lode is very regular, about 2 ft. wide, composed of carbonate of iron, blende, and spots of lead. The cross-cut south of Kiln shaft will cut this lode in 5 or 6 fms. driving from the shaft—we have driven about 3 fms.; this lode in its eastern course is about 20 fms. south of Nangle's shaft, at the depth of the adit level.

BIRCH TOR AND VITIFER.—The adit on the Old Vitifer lode has been cleared and secured from the fall to this lode about a mile, and from the point at which it intersected the lode to the old shaft, being 1/2 mile. This work has occupied some years and has cost more than 2000l.; it will now stand at least 50 years, and I consider this to be a very valuable and important work done for the mine. Dunstan's shaft is 34 fms. from surface, and 20 fms. under the adit—the lode in the bottom of this is very good. The 10 fm. level, west of this shaft, has been driven 15 fms.; the level passed through a hard bar of ground from 15 to 17 ft. thick before it entered this ground, and after it passed through the lode has been good, worth throughout full 8l. per fm.; the 10 fm. level, east, was good until it got out of the influence of the cross-course, which extended about 13 fms. In the 12 fm. level, since driven, the lode is a good lode, and the present end is very good, worth full 8l. per fm.; this is highly encouraging, as we are driving into a very high hill, and are getting near to the old beds, of which report speaks so highly in the ancient workings. The 20 fm. level has been driven 2 fms., the first shaft through a good lode; the end then entered the hard bar of ground met with in the 10 fm. level, and has been driven in it about 9 ft., and we expect to have 8 ft. more to drive before we come into the course of tin met with above—I like to see this hard bar of ground going down regularly. This end is in the ground of the old shaft, the cross-course; we have cleared about 8 ft. of it, and have, consequently, about 14 fms. more to clear before we come into settled ground, when we shall again meet with a good lode, as we have done in the 10 fm. level above. The old engine-shaft, on the Vitifer lode is 14 fms. from surface; we shall begin to clear up this shaft in about a week, and when it has been cleared to the 20 fms. level, we shall have a very large extent of lode open. No stops have been let in this lode as yet, but on Saturday I shall set three pillars; the tin will not come into the samplings until after the present month, and then our returns will considerably increase—I never saw a better tin lode opened than the Old Vitifer lode. Our ground is very good for driving, and stands with little timber. In the shallow adit, east of Hawk's shaft, on Birch Tor lode, we have had upwards of 50 fms. of ground, which has all come away at a moderate tribute; the end is still good, and in stopping the backs behind this end we have met with a considerable improvement, the lode here being all worth 8l. per fm., and there about 30 fms. of backs. The 10 fm. level west of Fideux shaft is let at a tribute of 13s., and the 10 fm. level east is let, the back with the end, at 10s. tribute. In our drive the tin is taken from the good 36l., which makes the tribute appear very much higher than it actually is. The cross-cut on the north lode is progressing satisfactorily; there is a fair supply of water, and I have now 32 heads of stamps at work, and shall have more shortly.

BYRN-AR-IAN.—The lode in the 10 fm. level, east of the engine-shaft, is 8 ft. wide, ore throughout; the part of it we are carrying for the level is yielding 1 ton of ore per fm.; the same level, driving west, has a lode 3 ft. wide, with small branches of ore interspersed throughout. The slope in the bottom of the deep adit level, east from the shaft, is producing 15 cwt. of ore per fm.; the slope back over the deep adit level, east from the shaft, produces 1 ton of ore per fm.; the slope back over the deep adit level, west from the shaft, yields 15 cwt. of ore per fm. We sampled 20 tons of ore on Saturday last, and are still in regular course of dressing; added to which, we have a large quantity of work already broken.

CARTHEW CONSOLS.—At the upper mine we have this week cleared and secured the sink in the engine-shaft, below the 55 fm. level; about 24 fms. more will, I anticipate, show us the bottom. Nothing has been done this week in the 55 fm. level, and in the tinwork department elsewhere, I find no particular change since my last report, but the tribute looks admirably well, yielding far greater quantities of ore than I expected, principally in lead. At the lower mine I find the ground somewhat harder than when last reported on, but the lode much the same. We sampled on Monday, the 1st instant.

CWM ERFIN.—Our slopes, east of the engine-shaft, in the back of the 20 fm. level, are worth 7l. per fm.; ditto, 10 fms. east of ditto, worth 8l. per fm.; ditto, 30 fms. east of ditto, worth 10l. per fm.; ditto, 30 fms. east, worth 10l. per fm.; ditto, 40 fms. east, worth 12l. per fm. The 20 fm. level, east of the winze shaft, is poor. The slopes over the 10 fm. level, 25 fms. east of the winze-shaft, are worth 6l. per fm. The 20 fm. level, west of the winze, is poor; the 20 fm. level east is worth 10l. per fm.

DEVON AND COURTENAY.—The lode in the winze sinking in the bottom of the 40 fm. level continues large, and without any material alteration—water favourable. The lode in the rise is now saving work, 6 in. wide, worth 6l. per fm., and I think, will soon improve. In the cross-cut driving north, in the 50 fm. level, I have put the men to drive east on the lode reported on last week; as we go off from the cross-course it is opening and crossing two good walls; it is now 2 ft. wide, and improves as we get off from the cross-course. The tribute pitches are as usual.

EAST CROWDALE.—We beg to hand you our report of the mine, with list of settings. The middle shaft, to sink by nine men, stented 4 fms. in the month, at 10l. per fm.; the present depth is 4 fms. 5 ft.; the lode has improved in character in this depth, being more concentrated and better defined, producing at times good stones of tin, but, on the whole, not rich. The slopes east of middle shaft, in the bottom of the 17 fm. level, by two men, stented the month, price 45s. per cubic fathom; these slopes are producing a quantity of tin, which we have been saving, and have been saving in the back of the 17, by three men, price not fixed; this should be worked on the tribute system, but we are not in a position to do so, being so closely connected with the owners' share; this lode is worth at least 10l. per fm., and the cost will not exceed 40s. per fm. in sending it to surface. The 28 fm. level to drive west, by two men, stented 4 fms. in the month, price 45s. per fm.; the indications of this end are flattering; the lode well defined, 2 ft. wide, is producing copper, mende, peach, prlan, and spar, in a good stratum of ground, and our opinions are, that this lode will make copper going west. Our rods, 8 ft. long, are progressing satisfactorily, and will be ready in 10 to 12 days for 11 fms.; the middle shaft. The weight of the last parcel of tin is not yet arrived, but we expect it by Monday or yesterday's post.

EAST TAMAR CONSOLS.—The shaft has been sunk 2 fms. under the 50 fm. level, and ground cut for tramroad, bearers, and others—the men are now engaged in fixing plunger-lift, &c. The 80 fm. level has been extended 5 fms. 4 ft. 6 in. south of the engine-shaft; the lode in the end is 3 ft. wide, and easy for driving, worth from 2 to 3 cwt. of lead per fm. The 70 fm. level has been extended 4 fms. 3 ft. 6 in. south; in the end the lode is 4 ft. wide, composed of flookan and horn-spar, and worth 8 cwt. of lead per fm.; the same level has been extended 3 fms. 6 ft. 3 in. north; the lode in the end is 3 ft. wide, yielding 6 cwt. of ore per fm., and likely to improve. The 60 fm. level has been driven 2 fms. 5 ft. in the end is hard, and rather disordered, but producing good stamps work; the same level has been extended 2 fms. 3 ft. 6 in. north, the lode is 3 ft. wide, and worth 6 cwt. of lead per fm., and is in an improving state; the winze in the bottom of the 60 fm. level has been sunk 1 ft. 4 ft. 6 in., the lode is large, and worth 9 cwt. of lead per fm.; this winze is about 8 fms. before the north end in the 70 fm. level, and will lay open a fine piece of ore ground. The tribute department is looking well, and will maintain our former returns, with a prospect of some increase.

ESGAIR LEE.—I beg to hand you an account of our setting-to-day for October:—The engine-shaft to sink below the deep adit by nine men, 9 fms. stented at 11l. per fm.; and in case they accomplish the said 9 fms. stent in three months to receive a premium of 10l.; the winze below the shallow adit by nine men 3 fms., or the month at 5l. per fm.; the month, 2 fms. 3 ft. 6 in. in the month, 11 fms.; the lode is a little improved since my last report; the deep adit east, on the north lode, by six men, 4 fms. stent, or the month, at 7l. per fm.—driven last month, 4 fms. 0 ft. 7 in.; the lode in the present end is rather poor; the deep adit, east of the engine-shaft, on the south lode, by four men 4 fms. stent, or the month, at 4l. 10s. per fm.—lode is poor; the shallow adit to drive west of Morgan's winze, on the caunter lode, by four men 4 fms. stent, or the month, at 4l. per fm.; the lode is 4 ft. wide, looking very kindly, and will yield, on an average, 3 cwt. of ore per fm.

EXMOOR WHEAL ELIZA.—The lode in the 24 fm. level is still about 4 ft. wide, composed of mende, copper, and quartz of a beautiful appearance, although not rich at present; the cross-cut south, in the same level, has been harder of late—being subjected to tinches of white iron. We hope to intersect the south lode in a little less than a month from this date.

HEIGNSTON DOWN CONSOLS.—We shall commence cutting into the lode in the 45 fm. level, from Bailey's engine-shaft, in the course of the present week. The lode in the 35 fm. level, east of the cross-cut, is without important alteration since my last report, as also the lode in the 29 fm. level, west of Hiltchell's shaft.

HOLMBUSH.—The lode in the 120 fm. level south is 5 ft. wide, and will produce 3 cwt. of lead per fm. ground very favourable for exploring; the ground is again favourable in the 120 fm. level cross-cut south, towards the slag-lake lode, being a beautiful white soft kilas stratum, which we hope will continue. The lode in the 110 fm. level south is 3 ft. wide, producing about 4 cwt. of lead per fm. The slag-lake lode, in the 100 fm. level, east of the great cross-course, is 20 inches wide, composed of spar, mende, and stones of copper ore; the lode has improved within the last few days, and we hope a much greater improvement will speedily take place. We sampled on Friday last, at Cuckoo Quay, a parcel of copper ore, computed 10 tons, and have this day shipped the parcel of silver lead ore, weighing 20 tons 6 cwt., on board the *Lavie*, John Heydon, master, to Messrs. Pontifex and Wood, at Wellington, Newcastle-on-Tyne, at which place I hope we will arrive safe, and be found correct.

KINGSETT AND BEDFORD.—I was at these mines on Saturday, but in consequence of indisposition, was unable to go underground, the water being also very deep, by reason of their laying the railway. Capt. Harris, who was down previous to my visit, brought up a good stone of lead from the lode south of the rise, where he says it is more than 3 ft. wide, and a solid lead of lead on the foot-wall from 3 to 4 inches wide. The lode, during the last three days' working, has been found to increase in size more than one-half; it is spotted with lead throughout, but we shall see more of it by Saturday next, when I hope to go underground, that being our setting-day, and I hope the rain will all be expected. We went down the wagon on Saturday, and it worked extremely well. We expected to set the men rising on Saturday next. Our south end is driven so far south as to reach the north part of the old workings within a fathom or two—I mean that to the north of Luke's; as we rise up a few fathoms, we expect to reach a good course of lead. There is something of an improvement in the copper lode. We have now a black capel stone about 1 ft. thick; such sort is very congenial for copper, and is the first appearance of this description of stone I have seen in this mine; it

is spotted with very weak yellow copper; how long it will continue I cannot say; all I can state is, it very much resembles that of Great Friendship. If the strata around the lode corresponds with the capel, I shall shortly expect something of importance, but with the change of strata, we consider it a "flash in the pan," as regards copper. The ground in the rise, on the caunter lode, is much softer, and the lode more compact, producing good work for lead.

KIRKCOEDBRIGHTSHIRE.—The lode in the 62 and east is near 3 ft. wide, composed of sulphur, chalk, and lead, with a kindly spar; the lode in the 69 west is 2 ft. wide, with a fine rib of ore in the upper part of the end, yielding 7 or 8 cwt. per fm. The lode in the 60 west is still improving a little, good stones of ore coming in the back of the end with better ground. We expect to hole the winze above to this end next week, which will improve the lode in both the levels. We intend sending off a cargo of ore in the beginning of next week.

LAMHEROE WHEAL MARIA.—At the engine-shaft we have commenced driving north, and expect to have about 4 fms. before we intersect the lode. The shaft being so very wet at first starting, I have set 1 fathom only at 6l., as I think we shall be able to drive at less per fathom after the first is completed, and hope to accomplish the whole by the end of the present month, unless any unforeseen accident should occur. As Davey's shaft, three of the horizontal rods have broken, and four others are not trustworthy, so that it will take us this week in getting the whole work finished, as I am afraid to risk them any longer, for fear of danger. Having disengaged the rods, the engine will still continue working, so that we shall not interrupt the progress in the higher shaft.

MENDIP HILLS.—During the past week several of our hands have been engaged in making a reservoir at the upper part of Blackmoor dressing floors, for the purpose of collecting water for dressing, as also in clearing the large drain around the north side of Blackmoor slag ground, in order to prevent, if possible, the surface water falling to the bottom of the valley, in case of heavy rain. At Ubley, we continue to press forward as fast as we possibly can with our different operations for the dressing floors, which are in a forward state of completion. Charterhouse Valley presents much the same appearance as when last reported, producing some good quality slags and slimes. The new steps for driving the fan, I am glad to inform you, have arrived. We have this morning commenced smelting; we hope to get a sufficient quantity of slags to keep the furnaces engaged a week or ten days.

OLD WHEAL PROSPER.—In the last week's report there was a typographical error—instead of "1200 gallons," it should have been 12 cwt. of tin to the 100 sacks of work. We have now plenty of water for our stamps; and, as soon as the small engine is erected on our present workings, we shall make good returns. The lode is looking well; we have sent a report to the office from one of our first-rate men, agents in the neighbourhood, who is well acquainted with our mine, which, I think, will be received with great satisfaction. It is currently reported here the Great Hevas Mine is very soon again to be set to work. If such is the case, it will raise our mine many thousands pounds in value, as they will nearly drain it of water to the 70 fm. level.

SOUTH TAMAR.—The plunger-lift is fixed in the bottom level, and the mine is now in work. We have had the mainframe to break the main rod twice, which has impeded our operations, and prevented us from extending the bottom level. In the 90 south the lode is 3 ft. wide, easy for driving, and will yield 8 cwt. of lead per fm. In the 80 south the lode is much altered and improved; it is now composed of capel and ore of a rich quality, to the extent of 15 to 16 cwt. per fm.; the lode is very regular, with a flookan 10 inches wide under it, and there is no doubt but we have reached the shoot of ore first seen in the 30 fm. level. In the 70 south the lode has not been taken down during the past month. The 55 south is being cleared; the end is 20 fms. from the shaft, and still in work. The slopes in the back of the 30 fm. level have produced a large quantity of work, some of which will be dressed by hand, but the greater part must be stamped.

SOUTH WALES MINES.—The Dalwin deep adit, to drive east of the Rhynt river, by six men, 6 fms. stent, or the month at 2l. 10s. per month—driven last month, 5 fms. 2 feet 10 inches; the lode is 5 feet wide, looking very promising, and is producing some saving work.

SOUTH WHEAL TRELAWNY.—The ground in the engine-shaft, sinking below the 40 fm. level, is favourable, the stratum being a dark blue kilas, which is very congenial for mineral, and is again set to sink at 16l. per fathom, month's stent—water a little quicker.

TRELEIGH CONSOLS.—Garden's shaft, below the 113, is sinking in the country. In the 90, west of ditto, lode 2 ft. wide, with stones of ore. In the 80, west of ditto, lode 20 in. wide, worth 12l. per fm.; in the 80, east of cross-cut, lode 2 ft. wide, worth 8l. per fm. In the winze below the 80, lode 18 in. wide, with good stones of ore, and looking kindly. In the 60, west of Garden's, lode 20 in. wide, with stones of ore. At Wheal Parent, the engine-shaft, below the 30, is sinking in the country. In the 30, east of ditto, lode 2 ft. wide, worth 7l. per fm.; in the 30, west of ditto, lode 20 in. wide, with good stones of ore, and is looking more kindly. The rise above the 30 is set on tribute. In the winze below the 20, lode 18 in. wide, poor. In the winze shaft, below the 12, lode 1 ft. wide, with stones of ore. At middle lode, Nicholson's shaft, below the adit, lode 1 ft. wide, poor. In the adit, east of ditto, lode 18 in. wide, worth 2l. per fm.

WEST DOWN CONSOLS.—The following report was read at the meeting of adventurers, held at the mine on the 24th Sept.—a notice of which, with the accounts, appeared in our last:—According to your request, I have taken a survey of the surface of the mine, sketched the run of lode already seen, as near as possible, and also ascertained the hill as well as the shaft, the characteristics in both places are very similar. The pits which have been sunk to carry on future operations, as regards the erection of a water-wheel, with the proper appliances to drain the mine, and sink the shaft under the present depth (which is only 7 fms. under the surface), as well as to stamp the tin ore already risen from the shafts and slopes. It is evident the lode is large, from the size of the rock broken from it, and there is no question but the tin ore is of a very superior quality, and no doubt further development will show it to be productive of quantity. The middle lode (three in number) appears to be the main or master ore, both on the summit of the hill, as well as at the shaft, the characteristics in both places are very similar. The pits which have been sunk on the summit 60 fms. to the west of the cross-course, present indications of productiveness, and the shaft where the tin has been risen, being 250 fms. east of the cross-course, gives me an idea that it will be a lasting and productive mine. There is also another lode about 5 fms. north of the one alluded to, very regular, but not so large, which is inclined to form a junction with the middle lode ore it is intersected by the cross-cut adit level, about some 25 fms. driving north, to which must be added the underlay, but that is not yet exactly ascertained, but, if correct, what has been seen in the cross-cut, and the lode in the cross-cut, it will increase its length from 25 fms. to nearly 40 fms. The depth of adit, when up to this point, will be 65 fms. under the surface.

WEST WHEAL JEWEL.—In the 85 fm. level, west of Williams's cross-course, on Wheal Jewel lode, the lode is worth 3l. per fm. In the 70 fm. level, west, on the same lode, the lode is 20 inches wide, producing stones of ore. In the 47 fm. level, east of Williams's cross-course, on the same lode, the lode is worth 3l. per fm. The lode in the deep adit, west, on the same lode, is unproductive. The lode in the deep adit, west of Tregoning's shaft, on Tolcarne tin lode, is unproductive. In the 12 fm. level, west of Tregoning's shaft, on the same lode, the lode is not taken down for the last fortnight. In the slopes in the back of the 12 fm. level, west of Fryer's winze, on the same lode, the lode is worth 11l. per fm. In the slopes, east of Fryer's winze, on the same lode, the lode is worth 11l. per fm. In the slopes in the bottom of the 12 fm. level, east of Tregoning's shaft, on the same lode, the lode is worth 16l. per fathom. In the slopes in the bottom of this level, west of Tregoning's winze, the lode is worth 20l. per fathom. These slopes are working on tribute.

WHEAL FRANCO.—The lode in the 62 fm. level, east of the engine-shaft, is large and ore—a very promising lode, which has improved in appearance since the last monthly report. The lode in the 62 fathom level, west of the said shaft, is producing some ore, but is not yet clear of the influence of the cross-course. The lode in Toll's winze, in the bottom of the 47 fm. level, east of the engine-shaft, is of a promising character, and producing some ore, but not rich; this winze is about 10 fms. east of the present end of the 62 fm. level, east of the engine-shaft. The rise in the back of the 32 fm. level, east of Fryer's shaft, has been suspended, in consequence of the rise being at present poor; and we have put the men to strip down a piece of lode in the same level, opposite Fryer's shaft, there being a large piece of lode standing at this place. There is not much alteration in the tribute department during the last month. We shall sample for Sept. month 105 tons of ore.

WHEAL MAY.—We have opened on a very fine copper lode, and raised a quantity of rich copper ore, a small box of which I have forwarded to the office in London. We are driving now towards this lode, which we hope to cut within six weeks, if the ground holds as it is. We have set the end to drive at 55s. per fm. Things are looking very favourable with us at present. I shall give you further particulars next week.

WHEAL PENHALE.—The ground in the engine-shaft is much as last reported, and the lode is not very difficult; we are now down about 6 and 7 fms. below the 20 fm. level; the north end in this level is much improved since my last; the lode is now yielding good work in lead; in the south end I do not find much change, neither do I in any other part of the mine. She is altogether looking very well. The samplers have no time to meet their intention of sampling the ores on Monday (Oct. 1).

WHEAL SARAH.—Mr. Webb has been to this mine to-day, and found the steam-engine progressing to his satisfaction; and he says it will be at work in three weeks from this time; and in a week after that time, we shall get to the tributors' work which is now broken underground; and in six weeks the water will be in for to the bottom of the mine, which is a fathom. The stamps are in full course of working, and returning good silver-lead ores, and hope to have a good sampling next week.

WHEAL TRELAWNY.—In the 82 fm. level, north of Phillips's shaft, the lode is 4 ft. wide, worth 5l. per fm.; in the 82 south the lode is of the same size and value as in the north level. In the 72 north the lode is 3 ft. wide, worth 8l. per fm.; in this level south the lode is 24 ft. wide, worth 10l. per fm.; in the winze sinking under this level north the lode is large, and producing good saving work, worth 9l. per fm. In the 62 north the lode is 4 ft. wide, worth 12l. per fm.; in the winze sinking under this level north of the shaft, the lode is 3 ft. wide, worth 10l. per fm. Trelawny's shaft is down 6 fms. 2 ft. below the 72, the ground still favourable. In the 72 north the lode is 34 ft. wide, worth 6l. per fm.; in this level south the lode is 3 ft. wide, worth 6l. per fm. In the 52 north the lode is 34 ft. wide, worth 9l. per fm. The slopes throughout this part of the mine are much the same as for some time past. At the north mine, in the 30, south of Smith's shaft, the lode is 3 ft. wide, worth 8l. per fm. In the 55, north of Trelawny boundary, the lode is 2 ft. wide, worth 6l. per fm. In the 40, north of Smith's shaft, the lode is 1 ft. wide, but not so ore as last reported; we are induced to think there is more lode further west, and we have commenced driving in this direction to ascertain if this is the case; in the slopes in this part of the mine there is nothing new to notice. We have commenced a winze in the bottom of the 30, north of Smith's shaft, in order to ventilate the level below. We have had a parcel of silver-lead ores, computed 1-8 tons, at 18l. 7s. per ton.

WHEAL TRESCOLL.—Our backs throughout the mine are just the same as last reported on—good for tin. The west end is still improving—a good lode. Our engine-shaft is down 9 fms.—ground still improving. We have a lode coming in the shaft, but whether it is the B lode, No. 2, or not, we cannot say, as we have not cut through it as yet. The 30-in. cylinder engine works well, and hooves a sufficient supply of water for our stamps, also for the 46-ft. water-wheel, which we are now putting in; the water which the engine is drawing to surface will drive 50 head of stamps. We sold our monthly produce of tin last Friday, which made the standard price for black tin. We can boast that there is not a mine in England that can again produce the like sample of tin, and when we have got the large wheel to work, we shall be able to return sufficient tin to make large profits. One of the directors (John Maylew, Esq.) was here last week, and feels confident that this will make a lasting and rich mine.

WHEAL REETH.—At a meeting of adventurers, held at the mine, on the 18th Sept., the accounts from Jan. 1st to June 30th were presented, showing—Balance in favour of parser of 540l. 3s. 2d., of which amount 242l. 5s. 6d. are due from adventurers in arrears.

FOREIGN MINES.

AUSTRALIAN MINING COMPANY.—Tungillo Mine Report, May 4.

Ores supposed over 36 per cent. produce, raised from the commencement, 1897, and sent to the shipping place 21 cwt. 367
Ditto, not yet sent from the mine 103-470
Now on the mine, supposed to be from 10 to 15 per cent. produce 260

Total raised 21 cwt. 890

Report.—In the past month we have sunk Anstey's engine-shaft 8 ft.; the ground continues much as usual, and we have agreed with the miners to continue this work at 50l. per fm. Good's stopes have turned out well in the last month, and are continued at the old price of 6l. per fm., the ore being delivered by them on the ore floors. A cross-cut is being driven in the 40, west from Good's winze, in expectation of intersecting another lode in that direction; the strata in this end is most favourable for copper, and here we have shortly to lay open more ore ground. In the 40, north from Harvey's cross-cut, we have a solid lode of ore; and, although its cost of driving is 28l. per fm., no more than 13l. per fm. will be given when we commence stoping. As yet, it is uncertain if we have this rich and solid lode of ore to cut in the cross-cut, west from Masterman's shaft. In the 40, south from Harvey's cross-cut, the lode is large and strong, producing good ore, but its percentage is reduced by being so mixed up with iron ore. The lode is large in the 40, north and south from Richard's cross-cut, and producing ore of a comparatively low produce, yet presenting such appearances as to make me deem it highly probable that, at a deeper level, we shall ultimately get an abundance of rich ore: 12 fms. south from Richard's we have another cross-cut driving west and are going on towards the productive lode at the rate of 4 ft. per week. The sinking of Anstey's engine-shaft has so far drained the water from Anstey's lode, as to induce us to resume the sinking of Anstey's winze, discontinued nearly two years ago, the water having been then too powerful to be kept under by more manual labour. Although the horse pump on Masterman's shaft cannot be completed till the end of May, to drain the water from Good's winze below the 40, we are preparing to commence the sinking of it by means of windlass and buckets, in hopes of getting down 2 or 3 fms. in the interim, being anxious to see if the lode is not softer and more productive below the water level. In the 40, north and south of Richard's, the men have refused to drive on the lode at 28l. and 30l. per fm., preferring the terms of their agreement with the company. All the other places are, and will be taken at the captain's prices, being calculated at 30s. per week for eight hours hard labour. Some of the old hands have left, with the intention of getting employment where they will not have to work so hard for their pay.

Tungillo May 16.—The men have commenced to sink Good's winze below the 40, from which a sample of rich native copper has been taken. In the 40 cross-cut, west from Good's winze, we have cut rich ore, but have not yet got it far enough to speak of its value. The 40, north and south of Harvey's cross-cut, still yields good ore; also the 40 north of Richard's, and the stopes over the 40 north of Good's winze. In the new cross-cut west, situated 12 fms. west of Richard's cross-cut, we have this winze cut into a lode of gossan containing some carbonate, and from its appearance expect soon to open on good ore ground; most likely the gossan contains silver; I have, therefore, sent a sample of it. There is a Mr. Richard Davey lately arrived in the colony, whom I have known for many years as a first-rate assayer. He informs me he has a letter of recommendation to Mr. Montefiore. He has a family, and is not very well off. I should be glad if you would send him the sample of gossan; his assayer is, I think, in Robert-street. I hope to have the horse-pump on Masterman's shaft, ready to set to work next survey day.

Tungillo, May 24.—By this week's post I acknowledge the receipt of yours of the 19th inst. We have still two men employed in raising emery; I am to ride over to-day, and load two drays, and will continue to raise and send off to Port Adelaide that mineral as the carriers arrive on the ground. Capt. Dinn is, I am sorry to say, getting gradually weaker every day; he does not leave his bed till one or two o'clock, and is confined to the sofa the remainder of the day. I read the paragraph in your letter relative to him, which seemed to afford him much consolation. By the mail-car I send a sample of ore from Good's winze below the 40, in which is a large lode of copper pyrites, an assay of which I have not yet had time to finish. The sample sent is a picked one; I am of opinion that the average will not produce so much as 20 per cent. Should you get an assay, I shall be glad to know the result by next post. In Anstey's shaft, we have cut yellow ore, and there is such an increase of water, that we have not been able to see the bottom of the shaft since last Friday. Our oats were finished the time, and two of the horses knocked up. In Anstey's winze we have a lode 7 ft. wide, thickly spotted with, and some solid stones of, yellow ore and black sulphur. All other places continue as good and promising as usual. I thank you for your promise to forward the Mining Journal, which, however, have not yet arrived.

BOLANOS MINES.—The following advices were received October 4:—

El Bote Mine, Aug. 3.—Our progress in driving Taylor's cross-cut has been very slow, notwithstanding that we have had good workmen, and although every effort has been made, only 34 varas have been driven during the month. The cause of this has been the great quantity of water issuing from all parts of the end of the cross-cut, which has made the driving a work of great trouble and difficulty. I hope, however, we shall henceforward get on better, as the cross-cut is at present again in black slate, and there is but very little water coming from the end, and the stone is much better for blasting. The portion of the cross-cut which has been driven through the black slate, and is now in a fine clear blue quartz, with some good looking points, although from the assay they contain but very little silver, yet it goes to show that the colorados do not exist at this depth, and that we may confidently expect to cut the main body of the lode in negro. The water has increased about 1 stroke per minute for the engine, it being at present 64 strokes per minute. At San Fernando the water had sufficiently decreased as to allow us to commence working in Plan No. 2, on the 9th July, in which the vein is about 3 varas in width, in azogues of low ley. On the 12th, the water had entirely left the cross-cut, and the men began to work in the vein, and up to date we have sunk the vein to the depth of 12 varas, and the water has been sufficiently decreased as to allow us to commence working in Plan No. 2, on the 9th July, in which the vein is about 3 varas in width, in azogues of low ley. On the 12th, the water had entirely left the cross-cut, and the men began to work in the vein, and up to date we have sunk the vein to the depth of 12 varas, and the water has been sufficiently decreased as to allow us to commence working in Plan No. 2, on the 9th July, in which the vein is about 3 varas in width, in azogues of low ley. 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[Faint, illegible handwritten notes]

NOTICES TO CORRESPONDENTS.

"We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith."

"An Intending Patentee" (Leeds) should apply to Mr. Campin, of the Patent Office, 210, Strand, who will forward an official circular of information, with scale of charges, and give any further information which may be required, on application.

"F. M." (Ashton).—Zinc, either common or amalgamated, is almost always used as the positive metal of the battery, but since common zinc is subject to ordinary chemical action, and likewise, on account of alloys mixed with it, to local galvanic action, and since these actions continue even when the circuit is open, a great deal of zinc and acid are uselessly consumed. By the use of amalgamated zinc, first introduced by Sturgeon, this loss is avoided. With this kind of zinc, however, the current is soon reduced to 1-8th or 1-10th of its original strength, because no gas is evolved on the zinc, and, consequently, the acid does not get well utilized; but, on breaking contact for awhile, the current regains its former power. Rolled zinc plates are preferable to those of cast zinc, which are less pure. New plates act better than such as have been used two or three times, perhaps because the alloys come out more prominently as the zinc plates by use soon reaches its limit in the case of rolled zinc, but with cast plates it goes on continually. The more smoothly the plates are rubbed, the better they work. For the negative metal, copper, iron, lead, silver, platinum, silver, platinum, graphite, or peroxide of lead, may be used. These observations are principally gathered from Professor Faraday's remarks.

"E. J. C." (Broad-street).—The German Miners' lamp, used in Saxony, is very simple; it is generally formed of a brass globe, about 3 inches diameter, which fits on a stick in a lantern; this is made of wood, and cased with tin, which serves as a reflector; the front, from which the light is emitted, is entirely open. The superintendents of lamps do not differ much from the labourers, only inasmuch as they have a glass door, and are lined with brass, instead of tin.

"An Engineering Pupil" (Greenwich).—In Buck's railway chairs, the wedge is driven against the rail by a vertical key. Another sort of chair is made, in which an iron bar takes against the rail, and is keyed close up to it by a longitudinal key. The joint chair is laid down, not at right angles with the rails, but diagonally, and is cast with a split end, rather smaller than the rail; it has, therefore, to be clipped to get the rail in. There is, however, a great loss on these chairs, through their being made of cast-iron, which occasions great numbers to be broken in fixing and keying. To prevent this, wrought-iron chairs are made, by rolling the iron into the required form in length, then cutting up the lengths into chairs by shears, after which they may be drilled and completed.

Thomas Bradley (Leith).—The work was published in 1822; it is entitled, "Macadam's Remarks on the Present System of Road Making; with Observations, deduced from Practice and Experience, with a view to a Revision of the Existing Laws, and Introduction of Improvement in the Method of Making, Repairing, and Preserving Roads, and Defending the Road Funds from Misapplication."

"Electricus" (Liverpool).—Electrical bells are used in a variety of entertaining experiments by electricians. The apparatus, which is originally of German invention, consists of three small bells suspended from a narrow plate of metal, the two outermost by chains, and that in the middle, from which a chain passes to the floor, by a silken string. Two small knobs of brass are also suspended by silken strings, one on each side of the bell in the middle, which serve for clappers. When this apparatus is connected with an electrified conductor, the outermost bells, suspended by the chains, will be charged, attract the clappers and be struck by them. The clappers becoming electrified, will likewise be repelled by these bells, and attracted by the middle bell, and discharge themselves upon it by means of the chain extending to the floor; after this they will again be attracted by the outermost bells, and thus, by striking the bells alternately, occasion a ringing which may be continued at pleasure. Flashes of light will be seen in the dark between the bells and clappers, and if the electrification be strong, the discharge will be made without actual contact, and the ringing will cease. An apparatus of this kind, connected with one of those conductors which are erected for protecting buildings from lightning, will serve to give notice of the approach and passage of an electrical cloud.

"An Enquirer" (Southampton).—Almagra is a fine deep red ochre, with some admixture of purple, very heavy, and of a dense yet friable structure, and rough dusty surface. It adheres very firmly to the tongue, melts freely and easily in the mouth, is of an austere and strongly astringent taste, and stains the skin on touching. It is the *Sul* of the ancients. It furnishes very violently with the acid menstrua, by which single quality it is sufficiently distinguished from the *Sul* *Syracus*, to which it has in many respects a great affinity. It is found in immense quantities in many parts of Spain, and in Andalusia there are, in a manner, whole mountains of it. It is used in painting, and in medicine as an astringent.

"G. B." (Penzance).—In several parts of France gold has been found, although in exceedingly small quantities. In the year 1781, a vein was discovered at Gardette, in the valley of Oysans, department of the Isère. This vein consisted of quartz, which traverses a gneiss mountain, and contained auriferous sulphuret of iron, besides the specimens of native gold, but the quantity obtained was found insufficient to repay the expense of operations. Many of the rivers, as the Rhone, the Rhine, the Garonne, and others of smaller note, furnish auriferous sand. Veins of auriferous sulphuret of iron, traversing gneiss rocks, have been discovered at the foot of Mount Rosa, in Piedmont; and the sands of some of the rivers, as well as various parts of the soil, on the south side of the Apennine mountains, are likewise auriferous.

"L. M." (Cornhill).—The spring from which the Seltzer water is supplied, is situated at Nieder Selters, in the duchy of Nassau. The dukes the proprietor. It is said to have been purchased by one of his ancestors for a butt of wine. About 1,000,000 of large, and 2,500,000 of small bottles, are annually filled from the spring, and cleared for exportation. The profit is said to be about 5000*l.* per annum, clear of all expenses.

George Jones (Blackfriars).—The Leeds and Liverpool Canal commences at Leeds-bridge, where it unites with the Aire and Calder Navigation, and terminates at North Laid Walk, Liverpool, a distance of 127 1-6th miles. In the course of 41 miles, from Leeds to the summit level near Greenfield, the total rise is 411 feet, from the summit level near Colne to the basin at Liverpool there is a fall of 433 feet, and from the basin to low water in the Mersey the fall is 56 feet. Of this line of navigation, 11 miles, from Copthurst to Kirkstall, is the property of the Lancaster Canal Company. The great tunnel of Fourliffe is 1440 yards long, 18 feet high, and 17 feet wide. At Bingley, a connected series of five locks effect the enormous lift of 883 feet, which occasions a great waste of water. This canal was 46 years in hand—being begun in 1770, and finished in 1816.

"L. H." (Manchester).—The communication on the management of the Christiana Gas Company is much to lengthy for insertion. As the majority of the shareholders are Norwegians, no doubt the statutes of the company are framed according to the laws of that country. This appears to be one of the too many instances in which English capitalists embark in foreign undertakings without clearly understanding their rights, and the duties and responsibilities attached to the speculation; and find, when too late, that their money, which might have been profitably laid out in England, has been expended to enrich foreigners.

"T. C. S." (Baker-street).—The aqueduct of Alicant, in Lisbon, reaches from one hill to the other; it has 35 arches, the largest of which is 107 feet wide, and 320 feet high; it was constructed of white marble in 1738, by the architect Manuel de Maga. It was built so strongly, that it resisted the great earthquake of 1755.

"Miner" (Cambridge).—Dolomite, or magnesian limestone, occurs massive, and has sometimes a slaty texture; it consists of fine crystalline grains, which are lamellar—is generally white, occasionally with a tinge of yellow or grey; is translucent on the edges, and when struck frequently emits a phosphorescent light, which is visible in the dark; it greatly resembles primitive limestone, but is readily distinguished by its feeble effervescence in acid. It occurs in the Pyrenees, Saxony, France, Sweden, Iona, and in an impure state in many counties of England—Somersetshire, Yorkshire, &c. Near Sunderland it forms globular, earthy-like concretions, in the same vicinity it is found in slaty masses, which, when split in thin pieces, are very flexible—a quality supposed to depend on the water it contains, as it is nearly lost when the mineral dries. Gurlhof, which is a variety, is of a snow-white colour, and very compact; the fragments, which are sharp, are translucent on the edges—fracture flat conchoidal. It is often taken for semi-opal. It occurs in veins traversing serpentine, between Gurlhof and Aggsbach, in Lower Austria. The mortar obtained from this species is esteemed for cement, being less subject to decay, owing to its absorbing less carbonic acid from the atmosphere than common limestone. For agricultural purposes it is of inferior value; when laid on particular soils, it tends to injure, rather than improve, vegetation—this effect is owing to the magnesia it contains. The cathedral of Milan, the Minster and city walls of York, are built of magnesian limestone; the white marble of Paros, and that of Iona, in the Hebrides, belong to this species; it, therefore, often admits, as well as limestone, of being cut and polished, and is supposed to be particularly durable.

"A Secretary" (Old Broad-street).—Arsenic, cobalt, and various other minerals, are found in the county of Cumberland; some mines were formerly worked at Black Combe, which, we understand, are likely to be recommenced.

S. Byles (Durham).—Sir John Herschel has obtained some remarkable results by exposing thin writing paper, blackened on one side by holding it over a smoky flame, and afterwards thoroughly wetted with alcohol, applied to the unsmoked side, to the action of the solar spectrum. The blackened side, when exposed to the action of the spectrum, the paper, marked by a clear and sharp outline, the lateral extent of these rays; and, by due gradations of intensity in a longitudinal direction, their law or scale of distribution, both within and without the luminous spectrum. The thermic spectrum, thus impressed, extended from about the middle of the violet to a distance considerably beyond the red; moreover, it was found to consist of a number of distinct patches, the brightest of which were situated within and just beyond the visible red rays. Three other spots subsequently come in view, at continually greater distances from the luminous spectrum, and successively diminishing in brightness. This want of continuity in the thermic spectrum may arise from an absorbent effect in the atmosphere of the sun, or of the earth, or both. If such absorbent action be exerted by the earth's atmosphere, it will follow that a large portion of the solar heat never reaches the earth's surface at all; and that the least incident on the summits of the lofty mountains differs, not only in quantity, but also in quality, from that which the plains receive.

"A Constant Reader" (Leamington).—The largest piece of native copper is in the Royal Cabinet of Natural History at Ajuda, in Portugal. It was found in the Brazil, and is said to be of the enormous weight of 2616 lbs.

"J. M." (Brighton).—A report on the Gellivara iron mountain was made by order of the Swedish Iron Masters' Association, and published in their Annals for 1819. In it it is stated, "that all the fissures, from the top to the foot of the mountain, contain rich iron ore; and every part of this vast rock having been examined, it is fully believed that the Gellivara mountain consists of one entire mass of rich iron ore. The analysis of the ore gave from 68 to 72 per cent. It is, however, so far distant from the sea, that without a railroad, or other means of artificial transit, its treasures are unavailable."

A. Mole (Liskeard).—A man above 21 years of age is not bound by any agreement entered into, and signed by him, previously, or, in legal phraseology, while is an "infant;" nor would a clause in an apprentice's indenture bind him to any acts of either omission, or commission, in after-life. If the guardians have bound themselves to any particular acts of the apprentice, the party considering himself aggrieved, should look to them; but unless the terms of the agreement were very definite, and penalties attached, we should think it would be difficult to establish a case. In the present "go-a-head" age of free trade and liberality, the old ideas of exclusiveness in business, in ancient times looked upon as so sacred, are now regarded with anything but favour.

"J. P." (Newcastle-on-Tyne).—An excellent recipe for lubricating grease will be found in another column. There are a variety of methods of compounding it, but we should think the kind alluded to, if well made, would be very serviceable. We should imagine the grease mentioned turning black, proves it to be made of bad materials.

"R. B." (Rodney-terrace, Bow-road).—We have made inquiries, and find that West Providence shares cannot be obtained under the quotation this day in our list, 26-27; the quotation, 20-21, was forwarded us by a broker, whose name we have sent to our correspondent.

SOUTH WHEAL JOSEPH.—We have received a further communication from "Jacobi Vox," to which we are precluded giving insertion, from the personalities in which the writer indulges, and at the same time, appending to his letter the anonymous signature. This we do not think is fair, although the writer may be known to us; yet it is not honest to fire at the enemy from a masked battery. The letters which appeared in the Journal last week, with one exception, had the names of the writers attached. We admire candour and openness, and if "Jacobi Vox" will allow his name to be subscribed to his letter, such shall appear in our next Number. It is only right to observe, that the writer reiterates the statements which appeared in his letter of 29th Sept.; and, furthermore, furnishes a report from a practical agent, whom he had commissioned to examine the mine, which is a sad story indeed, but the agent's name not being given, we must, for reasons already assigned, and which will, doubtless, be well understood and appreciated by the writer, decline to insert reports which, however they may be based in truth, are anonymous. If "Jacobi Vox" is an adventurer—and we presume such to be the case, or he could not depute an agent to report for his own private information—then the question arises—why does he use his utmost efforts to destroy the property, and injure his co-adventurers as well as himself? If that he be not an adventurer, then it might be implied he is actuated by some personal feelings, except that he, perhaps, forms an exception, and is solely actuated by his *amour propre* of exposing abuses. We await "Jacobi Vox's" reply—*vox et preterea nihil*.

"Anti-Flash."—This is another letter on the subject of the Wheal Joseph Mine, but does not contain anything new. If the writer will authorise us to append his name, his letter, like that of "Jacobi Vox," shall appear. It is a pity that time and space should be occupied in personalities. Where abuses exist, we repeat let them be exposed; but as Capt. Hambley, and others, have written in their own names, it is dastardly and unfair to attempt replies without attaching the signature. Capt. Hambley boldly challenges "Jacobi Vox," or others, to inspect the mine. It is true that a report has been forwarded us by that gentleman, and even with his own name it shall have insertion, if that be permitted.

THE NEW LOCOMOTIVE ENGINE.—In the letter of "Erebus," in last week's Journal—"I would here refer to an account published long ago in the *Mechanics' Magazine*," ought to be "not very long ago."

ASTURIAN MINING COMPANY.—The writer of the letter, signed "A Victim," omitted to append his name and address—see first Notice.

"W. H. C."—Our correspondent's remarks on cholera are written in a good spirit, and we bear willing testimony to their correctness—bad water, bad drainage, bad food, and want of cleanliness are, doubtless, the disposing causes to this disease, but we fear little is to be expected from Government or Commissions, and that, to make sure of any really good measures being adopted, the people must take the matter into their own hands, and have recourse to the "prophets from without." The communication is, however, on a subject rather unsuited to our columns, or we should have had pleasure in inserting so excellently-written a paper.

THE COST-BOOK SYSTEM.—An elaborate and explanatory paper on this subject will appear in our next Journal.

"B. C." (Paddington).—The Schneeberg is 5300 feet high; the Sturmhöhe 5100 feet. They are both situated in the Kainsgebirge, which is a range of mountains in the dominions of Prussia and Austria.

"It is particularly requested that all communications may be addressed—
To the Editor,
Mining Journal Office,
26, FLEET-STREET, LONDON.
And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors."

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, OCTOBER 6, 1849.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

We present our readers to-day with our customary detailed statement of the sales of copper ore in Cornwall, for the quarter ending 30th September. It will be seen that, in however trifling a degree, there is still some improvement in the miners' favour. This has been wholly effected by the increased price given for the September sales; the features of the account, for the first two months of the quarter, showing a state of things which, had it continued for the remaining month, would have placed the business of the quarter, in all respects, except quantity, below the previous one.

ACCOUNT OF THE SALES OF COPPER ORES IN CORNWALL, IN THE QUARTER ENDING SEPTEMBER 30, 1849.

Date of Sale.	Average Stand.	Average Produce.	Average Prices.	Quantity of Ore.	Computed Quantity of Fine Copper.	Amount of Sales.	Value of Ore to produce 1 ton of Copper.
£ s. d.	p. cent.	£ s. d.	£ s. d.	21 cwt.	Tons cwt.	£ s. d.	£ s. d.
July	5 9 17	7 1	4 13 0	3598	274 6	16,679 0 6	60 16 1
"	12 94 9	8 1	5 10 6	2538	221 2	13,913 5 0	62 18 6
"	19 91 11	10	6 9 0	2115	212 14	13,692 17 0	64 8 8
"	26 100 0	7 1	4 10 6	3623	264 6	16,473 4 6	62 6 7
August	2 98 14	7 1	4 8 0	3881	280 15	17,337 2 6	60 13 8
"	9 95 19	8 1	5 10 6	2395	224 2	14,363 0 6	64 1 10
September	23 94 1	9 1	6 2 6	3041	296 19	18,524 9 6	62 14 5
"	30 104 2	6 1	3 18 0	2977	183 0	11,599 15 6	63 2 3
"	6 103 3	7 1	5 8 0	3001	300 10	20,549 12 6	68 7 8
"	13 103 16	8 1	5 16 6	2677	220 16	15,563 15 6	70 9 9
"	20 95 17	0	6 14 0	2467	233 0	16,475 3 0	70 14 2
"	27 106 10	7 1	5 2 6	3790	281 7	19,554 8 6	69 10 0
Totals for quarter	97 14 1	8 066	5 4 10	87,103	2992 17	194,495 11 6	64 19 9
Do to quarter ending 30th June	98 16 2	7 935	5 2 2	36,531	2956 14	187,167 15 6	64 7 10
Do to quarter ending 31st March	—	8 261	5 4 5	36,093	2981 11	188,507 0 6	63 4 6
Do to quarter ending 31st Dec., 1848	89 7 1	8 564	4 18 4	35,972	3080 8	175,833 0 6	67 8 3
Do to quarter ending 30th Sept., 1849	—	8 204	5 2 6	145,799	11961 10	747,003 8 0	62 9 0
Av. quarterly quantities & amounts for the last year	—	—	—	36,450	2990 7	186,750 17 0	—
Averages of 16 years ending June 30, 1833, to June 30, 1848	—	7 803	5 16 8	147,175	11184 0	858,730 0 0	74 15 6

The several lines following the particulars of the quarter's sales show the state of affairs for each of the three preceding quarters—for the year now concluded, with the quarterly averages of the year, and the yearly averages of the preceding sixteen years.

The quantity of ore raised last quarter, it will be seen, exceeded that of the previous one by 472 tons, the copper by 86 tons, and the amount by 7327*l.* And it exceeded the quarterly average of the whole year, by 635 tons of ore, but only 2½ tons of copper, and 7745*l.* in money. This apparent discrepancy between the quantity of fine copper in one case and the other is explained by the fact, that whilst the produce per cent., as well as the quantity of ore, exceeded in the last quarter those of the preceding three months, yet, although the quantity of ore was also above the average of the four quarters, the produce was 0.138 per cent. below the general average of the year, being 8.066 against 8.204—thus bringing the quantity of fine copper, for the two periods, so nearly equal.

The trifling advance in the average price of ore last quarter, as compared with that of the preceding one, being only 1s. 11d. per ton, may be regarded as but the same; since the increased produce of 8.066 against 7.935 is equivalent to 1s. 8d. per ton.

But there is a more important matter for the consideration of the miner. Although the value of ore does creep up a little, it will be seen, that the average of the year just terminated, or 62*l.* 9s. for the value of the ore to produce a ton of copper, is 12*l.* 6s. 6d. below that of the previous sixteen years, which was 74*l.* 15s. 6d. Therefore, the 11,961½ tons of copper, computed to be made in the last twelve months, has cost the smelter less (in the price of the ore only) by 147,425*l.* than it would have done at the average price of ores for the previous sixteen years. In other words, the miner has been mulcted of that amount by the smelter, for his own advantage. So

much for Cornish sales. We purpose, next week, giving our analysis of the dealings at Swansea.

Among those mines in "the county" which are progressing with the most promising indications of profitable results, it is with much pleasure we call attention to the prospects of the TRELEIGH CONSOLS, a report of the annual meeting of the shareholders in which will be found in another column. After many years of variable success, during which some profits have been occasionally made, and dividends paid, and during which workings the depth attained has at length reached a 125 fathom level, there is now, as will be seen by the report, the most promising indications that, on cutting the lode at this depth, a valuable discovery will be made. In the 80 fm. level, west of Garden's shaft, and in other parts of the mine, equally flattering indications present themselves, and every experienced miner believes that this property will, in a few weeks, prove itself a profitable investment. The finances are also in a satisfactory and healthy state, and there is every prospect of early and continuous dividends.

In our last Journal we made some remarks on the meeting of the ASTURIAN MINING COMPANY, held on the 25th of Sept. Our readers will have noticed that on that day was presented to the shareholders the report of a committee of investigation, appointed the 25th Aug., which report was, to use its own words, anything but "final and satisfactory." In fact, it appears that the labours of the committee have only resulted in the conclusive knowledge of what all the world were previously aware of, that the company was surrounded by difficulties of no ordinary description and danger. After entering into a long detail of mismanagement and financial errors, which have long been whispered, though never openly mooted, they propose, as a panacea for the evils which beset the company, that a deputation from their own body should proceed to the Asturias, to compare and examine the accounts, ere they make their final report to the shareholders. For this a subscription would be necessary to pay travelling charges, and remunerate them for their trouble and loss of time. Willing as we are to give these gentlemen their just due as indefatigable members of a committee, we question much whether they are calculated by their mining knowledge, and other qualifications, to inspect and report upon so valuable a property as that of the Asturian Mining Company. If these gentlemen are to be of any real utility to their constituents, they must not only examine accounts, but likewise place the establishment under a systematic and regular system of working; and for this we should say, from their previous avocations, they were eminently unfitted. To our thinking, no inspection of the property is required; it is acknowledged by all parties who have been on the spot to be one of the most encouraging enterprises that has ever been brought into the market, and if it had been judiciously managed, or even with common care, would long since have paid a dividend to the shareholders. Expensive experiments, and a defective knowledge of the market they were to supply, have been some of the causes of the failure in Spain.

We do not allude to the trafficking in shares, which appears took place when the company was first formed in London; many of the promoters of the company have long since ceased to have any interest in the concern, and the present directors are saddled with the liabilities, and blamed for the errors of their predecessors. The report of the committee proposes a close inspection of every account from the earliest date, "as it is really impossible for any ordinary intelligence to comprehend them." This, though based in justice, we do not think will be productive of any good result, for if there are defalcations, which are more than hinted at, we do not see how they can force the guilty parties to repay back the sums so appropriated, and it would be unfair to add a greater weight to the liabilities under which the present directors labour. The negotiations with MM. MUNOZ and GRIMALDI have, it appears, failed, and we think this a matter of congratulation rather than otherwise, as we do not see that it would have been productive of advantage to the British capitalists to be subservient to a board of directors, in which the Spaniards would have the majority of votes. Judging from the character of the nation, their litigious disposition, and the insecurity of the laws, in a very short time we apprehend that the English portion of the board would have been so worried, that they would gladly have resigned their seats, finding the impossibility of acting in any way with their foreign colleagues. We have always preferred seeing the investment of capital in British mines, or in our own colonies, in preference to its being employed in speculations abroad; when such has been the case we advocated the principle, that such a majority of the shares should be taken by English capital, as to give them the preponderance in the management. Such, it appears, was the case with the Asturian Mining Company; but, through want of knowledge of the legal technicalities of the Spanish laws, and a happy indifference to the consequences resulting from their ignorance, they have allowed the Spanish shareholders to obtain such moral weight with the Government, as to cause them to issue the decree of the 9th June.

The Spanish Government, in issuing this decree, go on the basis, that they do it to protect their own subjects who are shareholders in the company; and certainly, if the allegations there contained can in any way be substantiated, just and legal grounds can be found for this otherwise harsh proceeding. Certain it is that, unless some decided and energetic steps are taken immediately to rescue the company from its present fearful position, we fear we shall have to add the Asturian Mining Company to the melancholy list of foreign mines where British capital has been wasted, and its best energies exhausted, to aggrandize and enrich impoverished provinces and rapacious foreigners. Accrimination and reproaches are, however, now of no avail. If the property is to be saved, it requires that every one interested should put their shoulders manfully to the wheel, and endeavour to establish things on a better footing and more stable foundation.

True, much money has been expended lavishly and wastefully; but the shareholders must remember they are called upon, not to come forward and risk their money in a dubious investment, but to rescue one of the finest plants in Europe, which is only in its present deplorable situation through a long course of mismanagement and their own inactivity. Coal, limestone, copper, and cinabar, are found in abundance on the company's concessions; and, under a proper and economical system of management, once clear of its present difficulties, profitable dividends ought immediately to be made. Those who are acquainted with the Spanish Government, and the vindictive feeling which is expressed towards everything English, more especially since the cessation of diplomatic relations with this country, cannot but doubt that but a short period will elapse previous to the decree being put into execution; in fact, the works are at present being carried on under sufferance, and the political chief of Oviedo can, at any period, immediately suspend their operations. He may be well disposed towards them, but the tenure of office is more than ordinarily brief in Spain—his successor may be the reverse. The decree states, among other things, that there is nothing to oppose the company reconstituting itself, "considerando que esto no obstante la compania queda en libertad de constituirse de nuevo con estatutos que no repugnen a nuestra legislación mercantil, y sujetándose a las prescripciones de la ley de 28 de enero y del reglamento de 17 febrero, repetidamente citados, si estima que para la magnitud de la empresa y para llenar cumplidamente la importancia de sus operaciones necesita dividir en acciones su capital, o bien como compania minera de las que trata la real orden de 8 de mayo ultimo declaradas no comprendidas en aquella ley."

The directors have by their own showing infringed the law of the 28th January. The negotiations having failed with the Duke of RIANZARIES, we are not aware what plans will be mooted by them, or the committee of investigation, to save the company. However desperate it may appear, we would suggest, at the present crisis, that an accommodation should be endeavoured to be made with the Spanish shareholders. We are aware that this is a subject of great difficulty and delicacy; but desperate diseases require sharp remedies. The Spaniards are unable to carry on the works without the assistance of English capital and science; and we hope their own interests would induce them to listen to terms, which, while at the same time they would be advantageous to themselves, would not be unfair to the British shareholder. Any one who has travelled in Spain is aware that they always demand at least two-thirds more than they will take; and their hectoring, to use one of their own expressions, is but "lingua." A firm and judicious negotiation might be productive of good results. Due observance must be taken that nothing is left misunderstood, or capable of being tortuously interpreted. A strict adherence must be given to legal forms and intricacies of Spanish laws. A forced sale and a division of the spoil, if any remained, would but ill repay the shareholders for their anxious hopes and disappointed expectations. Under

all circumstances, this should be the "dernier resort." The trial with the Spanish shareholders is worth the experiment; it may probably fail. We do not, however, think they will be so blind to their own interests as to reject any fair terms of accommodation that may be offered. This effected, the management may still remain virtually in British hands; once legally re-established, means will no doubt be found to clear the existing liabilities; and the Asturian Mining Company, having conned the bitter lesson of experience, will, we trust, start de novo, and develop the capabilities of its fine property to the satisfaction of the shareholders.

Circumstances having for some time past brought us into a closer and more intimate relation with the county of Cornwall, than ordinarily happens to persons living beyond its limits, and not participating at all in its daily life and occupations, we have, among other things, had occasion to notice the growth and success of its institutions for public instruction, and especially of the POLYTECHNIC SOCIETY, which has just completed its seventeenth annual session at Falmouth. We need not, at this time of day, dilate on the advantages as well to popular morals, as to popular intelligence, which this and cognate institutions are calculated to spread broad-cast in their advancing progress; for it is matter of history, as well as of experience, that they tend to foster the infant genius, and to brighten the dawning literature of the people among whom they take root. In addition to the portraits and statues of illustrious Cornishmen which already adorn the society's rooms, others, we learn, are about to be presented, so that there will be a laudable series, reaching from the intrepid BOSCAWEN down to the accomplished CHARLES BULLER. These commemorative honours alone will be as odours breathing themselves through much of Cornish society, and particularly into the bosoms of the young, who, by these tokens and testimonies of honour which are set up before them, will, in all probability, be moved to that life of virtuous activity which may issue in similar rewards. There is a cloud of names, however, besides those as yet noticed by the society, which are entitled to all the posthumous honours which their countrymen can bestow upon them; and no narrow rule, if they are worthy, should operate to their exclusion. FOOTE, OFIE, and HENRY MARTIN are names that will not perish, though there be no record of their genius, or their labours, in the halls of the Polytechnic Society. But it is for the sake of the opportunity which the success of this society supplies for collecting a greater amount of mining facts, and for elucidating mining interests, that we speak of it on this occasion. These are the great, predominant, and staple wants of the county; and if the Polytechnic Society would give more attention to, and offer adequate prizes for, proficiency in geological science, in the mechanical arts, and the affiliated branches of learning, which are so important to mining success, we think it would earn a fuller reward of thanks and gratitude from the county, and from mankind, than it has yet received.

Our readers will recollect that, in the MINING JOURNAL of the 26th May, we inserted a communication from Mr. G. B. THORNECROFT, of Wolverhampton, stating that he was about erecting a test-room, for enabling railway companies to try the strength of all iron axles, fire bars, &c., purchased by them, and that gratuitously. This brought a reply from Mr. GEACH, of Birmingham, whom we now understand has joined the direction of the Shrewsbury and Birmingham Railway Company, charging Mr. G. B. THORNECROFT with obtaining orders for his own iron in this company, over which he was a director, and charging 16½ per cent. more than such articles could be got for elsewhere. To this came Mr. THORNECROFT's rejoinder, giving an explanation of the transaction, informing the public that a committee of the railway company was then investigating the subject, and calling upon them to suspend judgment until their report was printed. In our columns of the 8th of September we gave that report at length, which completely exonerated Messrs. THORNECROFT from the charges brought against them by Mr. GEACH. Indeed, it is highly corroborative of the fullest consideration to the safety of the public having been given by the carriage committee, before giving orders for a certain required number of sets of axles; and who, knowing that quality was, as far as safety and real economy are concerned, as much to be considered as price, and finding THORNECROFT's compound-axles in every way superior, very properly, we consider, gave them the preference. However profitable the patent for these compound-axles may turn out to be, we consider Mr. THORNECROFT, by thus publicly calling attention to the jobbing which has long been known to exist in railway companies has "done the state some service;" and we, therefore, with pleasure direct attention to another communication in our columns this day, in which the judgment of the carriage committee is substantiated as correct, by experiments conducted at the manufactory of the Messrs. Lloyds. On testing a solid axle, 2 cwt. 2 qrs. 12 lbs., it will be seen it broke in two separate parts with a load of 56 tons; while a hollow patent axle, with a bar within 1½ in. diameter, weighing 2 cwt. 2 qrs. 6 lbs., bore 67 tons, then only breaking the outer cylinder; and one weighing 2 cwt. 3 qrs. 18 lbs. sustained 110 tons, and then only fractured the outer axle. We think these facts speak for themselves, and point satisfactorily to Mr. THORNECROFT's position, both with respect to the railway companies and the public.

In our last week's Number, we recorded an accident at one of Messrs. BAGNALL'S pits, near Bilston, which happened to five men, who were thrown out of a skip by the swinging of the chain, and the shock of the skip striking the sides of the shaft. One man (WILLIAM GARNER) was taken up dead; and at the inquest, which took place on Saturday last, it was given in evidence by SWAIN (the butty), that immediately before the accident, he shouted to the engineer to go steadily, but he took no notice of the warning; and the jury returned a verdict of "manslaughter" against HENRY DAVIS, the engineer, who was committed for trial to the assizes. The slovenly and reckless manner in which men are let down pits to their work, and drawn up again, is one of the dangers in colliery workings which requires reformation. Had FOURDRINER'S apparatus been here employed, no such misery and disgrace would have occurred as is now in existence—the former in the family of the deceased, the latter on the head of the engineer. Not only, as we have repeatedly asserted, is the apparatus a complete safeguard in case of breakage, but the guide-rods render any such shock as occasioned the death of W. GARNER literally impossible.

COAL IN AMERICA.—The labour and capital employed in the coal regions of the United States exceed, in amount, the enterprise which is directed to any other mining interest in the country. The first notice of the existence of coal in the United States is found in a journal of the travels of a Catholic missionary, named Lewis Hennipin, in 1679, in which he alludes to a coal mine discovered upon the Illinois river. The area of bituminous coal strata ascertained to exist in the United States is estimated in square miles, as follows:—Alabama, 8,400; Georgia, 150; Tennessee, 4,300; Kentucky, 9,000; Virginia, 21,000; Maryland, 550; Ohio, 11,900; and Pennsylvania, 15,000—the total amount being 65,300 square miles. The same coals which were sold in Philadelphia, in 1833, at wholesale, for \$5.50 c. per ton, now bring \$4; those sold at retail in New York, 10 years ago, for \$8 per ton, now sell at \$6; and those sold at retail in Boston, in 1833, are now afforded at \$7 per ton. The coal brought to the various markets of the country in 1820 amounted to 365 tons, and the amount brought to market in 1848 was 3,063,508 tons; and the entire amount of coal estimated to have been extracted from American earth is estimated at 22,417,000 tons. With regard to foreign coal, we see it stated that, in 1821, the importation was 22,122 tons, and in 1848, 196,251 tons. From all these figures it is very evident that our country is most abundantly supplied with coal, and that it constitutes an important item in national wealth.—*New York Paper.*

NOVEL MODE OF MANUFACTURING ILLUMINATING GAS.—A very interesting experiment was recently tried by MM. Livenais, de Bordeaux, and Dr. Berhardt, at the chemical lectures of the faculty, in Paris, in the presence of several members of the Academy, and many other savants and manufacturers. The fact to be demonstrated was, that by the decomposition of grape-skins and wine-press, in a close vessel, carburated hydrogen gas would be disengaged, of such a superior quality as to lead to the supposition that it might be used with advantage in place of the gas ordinarily obtained from coal and resin. Half a kilogramme (about 1 lb. English) upon being put into an incandescent retort, furnished in less than seven minutes 200 litres (a litre equals about a quart English) of carburated hydrogen gas. This gas, on being supplied to a burner, burned with a bright white light. It is entirely free from smell, and the flame may be raised to a great height without smoke. A second experiment made with dried wine-press, gave an equally satisfactory result. By this simple means, any one may manufacture his own gas, in his own house, at a very trifling expense.—*Technologist.*

THE PIG-IRON TRADE OF SCOTLAND.

We have been requested to give insertion to the following letter, addressed to the iron-masters, dealers, and others interested in the pig-iron trade of Scotland:—

GENTLEMEN.—The trade with which you are connected has, within the last ten or fifteen years, so rapidly developed itself, and assumed so important a position in the mercantile interest of Glasgow, and the great fluctuations in the value of iron, and the vastness of the operations in the article having attracted the attention of those having the means and disposed to invest in the article, as well as the public generally, to the working of the trade, the extraordinary system that you have latterly adopted for facilitating the transference of pig-iron, or of its representative, excites the greatest surprise and distrust amongst most well-informed mercantile men, and prevents them, when they see a favourable opportunity, from investing in the article; and hence, I think, the present great depression in the value of pig-iron, when most other trades are in a healthy state, may be attributed. I would, therefore, offer the following remarks on the trade, and, I think, they will readily show that if a more sound mercantile principle were adopted, it would be for the interest of all concerned:—

The apparent advantages of the present system are, first, to the iron-masters, that, at any time when they require money, and are in good credit, even though they have no stock, they may sell almost any quantity of scrip, and get paid for it at once, and this scrip to them has this advantage—of not being a legal document; and though in honour bound by it at once to deliver the iron on demand, if they find it not convenient to do so, they can delay delivery from time to time, and the dealer has no recourse but by an action at common law. They also have no interest to pay, or other charge, for negotiating the loan. Secondly, for the dealer, that the iron-master charges nothing (nor, in fact, could, though he wished, as the iron when sold is seldom made) for keeping the iron till the dealer finds it convenient to take delivery, and delivers it free of expense.

The disadvantages are to the master, that the wealthy masters never require to resort to the selling of scrip for the purpose of raising money, and, therefore, they never issue scrip, but for pig-iron on hand; and the value of their iron is depressed by their less fortunate neighbours frequently entering the market and selling scrip at 2s. to 3s. per ton below the market value; and this in a dull market has a most injurious effect, as the dealers act then with great caution, from the fear that the market may be inundated with scrip, and a rapid decline the consequence; and in a rising market, so soon as a large maker is known as a seller, the dealers immediately become timid, as they know he could at once depress the market by continuing a seller to an almost unlimited extent. Secondly, to the dealers, although the stock of pig-iron was not 50,000 tons, and they think the whole is purchased from the makers, the maker can at any time defeat the most just calculation of supply and demand, by placing 100,000 tons or more of scrip on the market, for which there may not be one ton of iron in existence. Now, I would suggest, that an understanding should be come to, that no iron should be sold till it is made, or could be handed over to the dealer, when paid for, as his property legally; and were this the case, I am confident in a very short time the trade would be better for all concerned; and, in order to accomplish this object, I think the makers should come to an understanding amongst themselves, to establish public depôts at the Broomielaw and Port Dundas, where they could send their iron, as made, and in selling the iron, grant an order on the storekeeper for the iron, who could grant a warrant for it, and relieve the masters from all further trouble at delivery; the dealers and storekeeper could arrange the charges as to store rent and shipping the iron, which I think would not, on an average, exceed 1s. to 1s. 3d. per ton. This would give dealers and investors more confidence, as they would then know what extent of iron was in the market, and they would be removed from the fear of a large additional quantity being thrown on it, and it would also prevent forced sales by needy makers, and further give the dealers the security that it was iron they were buying, and not paper, representing minerals yet in the bowels of the earth.—*AN IRON MERCHANT.*

IMPROVEMENTS IN FURNACES.

[Abstract of specification of James Godfrey Wilson, of Chelsea, engineer, and William Fiddling, of Elizabeth-street, Pimlico, of improvements in obtaining perfect combustion, and in apparatus relating thereto—the same being applicable to every description of furnace and fire-place, as also to other purposes, where inflammable material is made use of. Inrolled 3d October, 1849.]

The patentees set forth in this specification that their invention consists—firstly, in improvements in the furnaces, or fire-places, of steam-engine, boilers; secondly, improvements in domestic stoves and grates; thirdly, improvements in lamps and burners; and, fourthly, improvements in candles.

The first part has reference to a mode, or modes, of admitting jets, or streams, of air into the furnaces, or fire-places, of steam-engine boilers, in order to assist and promote combustion. Beneath the fire-grate of the furnace there is provided an air-pipe, communicating with the external atmosphere, and to this pipe air passages are connected, which communicate with the same. On the top of each of these air passages upright air distributors are formed—such distributors being tubular receivers, perforated at top, in order to the better distribution of the air. The air passages are moveable; and by means of cams, working on a spindle, placed below them, motion is imparted thereto, causing them to rise, and push the air distributors into the furnace between the bars of the fire-grate—thus passing jets, or streams, of air into such furnace. The patentees state that one result of this peculiar action of the air distributors will be to lessen the amount of stoking required. The spindle working the cams is to be carried beyond the wall of the engine-room, and arrangements may be made for driving the same from the engine. The regulation of the supply of air is to be effected by suitable valves in the air distributors. Several modifications are shown and described; but the principal features are as above described.

The second part of the invention has reference to the application of the aforesaid improvements to domestic stoves and grates. An air-pipe communicating with the exterior of the building passes through the back of the stove, and conveys air into the fire by means of the air distributors, the whole apparatus being similar to that above described, with reference to the first part.

The third part has reference to an apparatus for conveying jets or streams of air to lamps and burners, in order to sustain the flame. This apparatus consists of an air-pipe, passing into the centre of the flame, where it terminates in an annular pipe, perforated with holes forming the distributor, and supplying air to support the flame. Modifications of this are shown and described.

The fourth part has reference to the supply of air to support the combustion of composition or other candles, made in moulds. The candles are simply to have a channel through their centre for the passage of air, a small tube being fixed at the bottom of it, when in the candlestick, communicating with the air.

CLAIMS.—1. The mode described of supplying air to assist and promote combustion in the furnaces of steam-engine boilers. 2. The mode described of supplying air, to assist and promote combustion in domestic stoves and fire-grates. 3. The mode described of supplying air to sustain the flame in lamps and burners. 4. The mode described of supplying air, to sustain the flame of candles.

Patent-offices and Designs Registry, 210, Strand, Oct. 4.

LUBRICATING MATERIAL FOR THE AXLES OF RAILWAY CARRIAGES.—Take from 24 to 25 kilogrammes of soda, and dissolve it in from 15 to 16 litres of water in a small boiler; and when the whole is well dissolved pour it into a wooden vessel, containing from 120 to 150 litres of water, and stir the whole together. Then melt tallow in the proportion hereafter indicated; and when it is liquified, add it to palm oil, and heat it to the boiling point. When the mixture boils, let it cool slowly, and when it has cooled down to the heat of the hand, pass it through a sieve, letting it drop into the vessel containing the soda solution. While the mass is solidifying it must be well stirred, in order to render it perfectly homogeneous.

PROPORTIONS OF TALLOW AND TALLOW.

Summer.	Winter.	Spring & Autumn.
Palm oil Kilogr. 62.50	Palm oil 87.50	Palm oil 75.00
Tallow 87.50	Tallow 62.50	Tallow 75.00

—*Technologist.*

BRITANNIA TUBULAR BRIDGE.—The new cylinder for raising the tube having been fixed in the hydraulic press, operations commenced on Monday, raising it at the rate of six feet per day. Its action and structural strength are stated to be of the most improved and perfect character.

RAILWAY RATES.—With reference to the efforts of the railway directors to obtain powers to increase their rates, it appears that the subject is now under the consideration of the Commissioners of Railways, and that they are desirous to receive any written statements containing information on the subject.

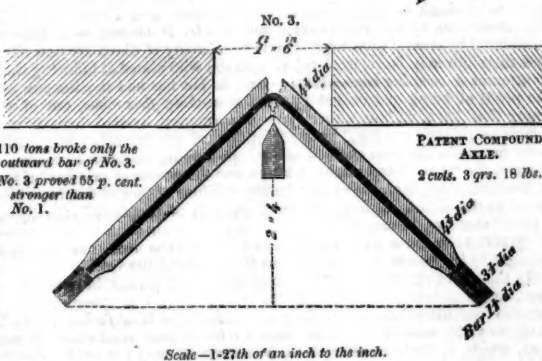
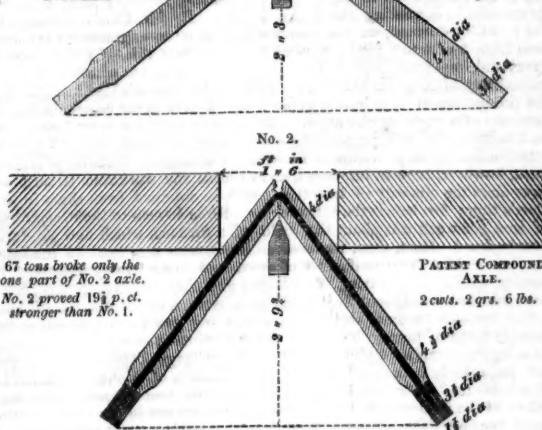
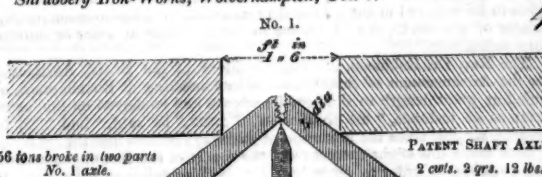
Original Correspondence.

RAILWAY AXLES.

SIR,—With reference to the charge made against the Shrewsbury and Birmingham directors by Mr. Geach, that in ordering the axles they were actuated by improper motives, without regard to the public safety, I feel, in justice to myself and my co-directors, that I should publish the proofs by which we were guided in the selection of the axles to be used, and leave the public to judge for themselves how far this charge is founded on facts. If we had made choice of the weaker axle, we might justly have been charged with want of due regard for the public safety. When the patentees set forth the superiority of the compound axle, I recommended the committee not to try one man's iron and make against another's, but to test the principle, by having one solid axle made, and one compound axle from the same quality of iron, by the same workmen, heated in the same furnace with the same quality of coal, rolled in the same rolls to the same size, and at the same time. This was done, and they were sent to the Messrs. Lloyds to be tested, from whom a certificate was returned of the result, which was as follows:—The solid one broke in two with a pressure of 78½ tons; the compound one fractured through only one-half of the hollow axle at 89½ tons, leaving the inner axle perfectly sound, which was afterwards broken by tension. Upon this proof the selection was made, and orders given out; after which Mr. Geach made his charges to our chairman, and also through the public newspapers. To further satisfy myself and the committee, I had the axle, No. 2, taken from the bulk, and drawn down to the same shape and size as the patent shaft one, which so altered its due proportion as to much weaken it; and, to prove this fact, I sent one out of the bulk without altering it from its due proportions; and the result fully shows the superiority of the compound principle. I am bound to say the patent shaft axle was as good as any solid axle can be made. All these samples, with the certificate of the test, can now be seen by any one who will call at our works and look at them.

G. B. THORNECROFT.

Shrubbery Iron-Works, Wolverhampton, Oct. 1.



Scale—1/27th of an inch to the inch.

RAILWAY AXLES.

SIR,—In noticing an advertisement of Mr. G. B. Thorneycroft's, it may, perhaps, be remembered that this gentleman a little time ago published a letter, imputing "fraud, bribery, and corruption" to almost every one, excepting himself, connected with railways. It may also be remembered that, in order that the railway shareholders might judge of the qualifications of Mr. Thorneycroft as their protector, I published the particulars of my correspondence with the chairman of the Shrewsbury and Birmingham Railway, in which I, as a shareholder, complained of the conduct of this same Mr. Thorneycroft, and his partner, Mr. Perks, in having, as members of a committee of directors, determined on excluding from competition with themselves all makers of iron used in the wheels of the company's carriages, and that, in consequence, the company paid 16½ per cent. more for Messrs. Thorneycroft's iron than the leading railway companies were at the same time paying to the Patent Shaft Company (in which I am interested) for iron used in similar articles.

This charge was investigated by a committee of four of Mr. Thorneycroft's brother directors—three of whom were his and his partner's colleagues in the committee of whose proceedings I complained. The committee were obliged to admit, in their report, that the facts which I had stated were substantially correct; but they repudiated the inference that the two members were actuated, in the slightest degree, by any consideration of their own interest.

Mr. Thorneycroft now publishes that, as far as axles were concerned, the committee determined to confine themselves to those of his manufacture, in consequence of his reporting the result of experiments which he had previously made on the relative strength of different axles—all made by himself. The beautiful simplicity with which he informs the public of the means he took, in his character of an ironmaker, to satisfy himself, in his character of a railway director, that his own axles were the best, is very remarkable; but every one must feel, that if in this instance he had not succeeded, it would have been more remarkable still. I may, perhaps, be excused for stating that, since making this complaint, I have been elected by the shareholders to meet Mr. Thorneycroft on the Shrewsbury and Birmingham direction.—*CHARLES GEACH: Birmingham, October 5.*

IMPROVED MANAGEMENT OF IRON-WORKS.—(Continued.)

3. MILLS AND FORGES COMPANY.—Working staff of operatives, as before mentioned (except the inspector, whose services would be only of consequence in the "mining companies," to see that the underground property of the ironmaster be carefully worked and properly kept in order), sub-managers, and overseers, with their necessary complement of men, to suit the principal divisions of the work night and day. This concern to buy coal, &c., from the mining company; pig-iron, metal, and castings from the furnace company; bricks and clay from brick-yard; timber, hampers, oils, tallow, and all other requisites for effectively carrying on the works, from the general store of the ironmaster.

Works, roads, and machinery, all to be put in good and proper work-

ing order by the proprietor or ironmaster, at the commencement of the first working contract, and a correct valuation inventory duly taken of everything committed to the charge of the company in question—viz.: stocks, plant, buildings, machinery, &c.—the working company then to keep all things in due order and repair, and deliver the same, as per inventory and valuation, up to the proprietor or ironmaster at the final end of the contract. All old castings, and other surplus materials, to be sold at a fair valuation to some of the other working companies, or to the ironmaster, but not to the public generally; and unfinished results to be delivered over to the custody of other companies, or to the ironmaster, or his general manager, at agreed-upon prices, weekly, or monthly, according to their several natures and qualities:—

Bar-iron, No. 2, at	per ton	Hoops, at	per ton
Ditto, No. 3, at	"	Wire rod	"
Rails	"	Nail rods	"
Flats	"	Sheet-iron	"
Bolts	"	Steel-iron and steel	"
Rods	"	Special orders, per agreement.	"

Iron cylinders and old castings to furnace company, at — per ton.
Refuse ashes of puddling fires, &c. at — per dozen barrows.

Smiths' work, masons' work, fitting and engine work, roll turnings, carpentry, haulage, &c., all to be done by agreement, with the managers or sub-managers of those several pursuits; thus safely arriving at the exact cost of every finished result, as well in this, as in every other department of the general concern.

All necessary extensions to be at the expense of the ironmaster, in this and every other department of the work; but the several working companies to keep all such extensions in good order and repair. All engine boilers to be worked with the spare heat of puddling and balling-furnaces, if any way possible; contracts in proportion. There are no difficulties in raising steam from the spare heat of the furnaces just mentioned, but what may be readily overcome by experienced managers of "iron mills and forges." It must be confessed, that many unsuccessful attempts have been made of so applying the "spare heat" in question; but, on a critical examination into such disappointments, I have invariably found them to arise from the adoption of hasty, careless, or unscientific arrangements alone.

All additions, or improvements, for the convenience of the several working companies, to be made at their expense respectively; and such additions to be removed at the final end of contracts, if the ironmaster, or proprietor of the works, should decline to take to them at a fair or satisfactory valuation.

The Rev. Dr. Robinson, the new president of the British Association for the Advancement of Science, at the late meeting at Birmingham, alluded at great length to the benefits science had conferred on the useful arts; as an instance, "the production of iron," he said, "had been increased six-fold since the invention of puddling-furnaces and the hot blast." I have made this slight extract from the report of the Birmingham meeting question, in order to show how far puddling-furnaces have been instrumental in increasing the make of iron. By Mr. Cort's invention of the puddling-furnace, an ironmaster was enabled to augment his make of iron from 3 or 4 to 8 tons per week from one fire; this, of course, was a great and important improvement in the iron trade; but whether Mr. Cort gained anything by his invention—an invention that doubled, in a manner, the production of iron in any given time—I have never heard, except in rumours of a negative character. Mr. Neilson (of "hot-blast" memory) is, I believe, the only person who ever reaped a "good reward" for the introduction of improvements in iron metallurgy! Puddling-furnaces have, however, been so improved, as to enable the workman to turn out three times the quantity of iron that could be obtained from them in Mr. Cort's time; for, before the introduction of iron bottoms to them, eight tons of iron per week was about the yield of a furnace, which now produces twenty-four! Here, then, we have an improvement opened to the trade that has trebled the manufacture of iron, and considerably improved its quality, with a great saving of both iron and coal—an invention that has been adopted throughout the world, as it were, and yet not the slightest notice has been taken of the person who, thirty years ago, laid out considerable sums of money, and spent many anxious years, in endeavouring to bring the invention under the notice and patronage of those who may now not improperly be termed the "old ironmasters of Monmouthshire and South Wales." Perhaps I am wrong in saying that no notice has been taken of the inventor of this important improvement in the puddling-furnace, because there has been three kinds of notices acted upon—viz.: 1. He (the inventor in question) had the honour, at the time above alluded to, to be distinguished, and was very well known about the iron-works just referred to, by the expressive name of *Mr. Ironbottom*!—2. He was considered by several very large ironmasters (many of whom are now alive, and therefore may be referred to) as a person who aimed at inducing them to attempt a complete impossibility;—and 3. He has had the honour and the profit of being patronised by one iron-making firm alone, out of the many that have, without either leave or ceremony, availed themselves of "their neighbour's services," by the adoption of the invention in question—an invention that has enabled many iron-making concerns to realise, as it were, the "power and might of kings, and the wealth of princes;" it has, at the same time, been the cause whereby millions of tons of fuel have been saved to the nation at large, and to thousands of people individually—a "firm" that has, in many other instances, given strong and tangible proofs of gratitude to those by whose scientific labours the iron trade has been brought to its present high position in the affairs of the world.

In the above remarks I have written as a third person, in terms, however, easily understood. Now at the time (1818), I proposed iron bottoms to puddling-furnaces, I fully explained how blast-furnaces may be made to yield, without the aid of hot-blast, treble their usual yield of pig-iron, which, at the time referred to, was about 60 tons per week; and the only reason why this other great improvement in iron metallurgy was never carried out, or indeed fairly attempted, was this—to do so would require the aid of men trained to systematically and scientifically conduct and control blast-furnace operations (the most critical points in iron-making)—parties not to be raised up in a day, or a month, as it were, and hence not immediately at hand for the use of the ironmaster. Here was the difficulty, and the cause why my propositions for the improvement, if not the perfection, of blast-furnace operations were never realised; but these difficulties did not exist in the application of iron bottoms to puddling-furnaces, for, in this case, there was scarcely any need of head work to put it in successful action. It was an invention, therefore, soon and easily put in practice, and, consequently, in a very short period of time, it became generally adopted throughout the iron trade. But, to carry out the smelting improvements required the stubborn facts of science to be applied with careful, but firm and vigorous, hands. At this point ironmasters have, even up to the present day, made a complete stand, apparently contented (if contentment may be found with bar-iron at 5l. per ton) to use no other than brute force, in a manner, for the accomplishment of strictly chemical, and, therefore, in a high degree mental, operations. The results are seriously to be deplored, for a number of reasons, one alone I will mention—i. e., the absolute and current waste, and total loss of millions of tons of coal annually.

4. WORKING COMPANY OF SMITHS, ROLL TURNERS, FITTERS, ENGINEERS, BOILER-MAKERS, &c.—The different branches of this company to be under the care and management of sub-managers and overseers, similar to the "mill and forge" company. All required materials to be bought of the other working companies, at the fixed prices before alluded to, or of the general store of the ironmaster; and all refuse or surplus to be sold or exchanged monthly. The labour, talent, and finished results of this company to be supplied by contracts for time, or special jobs, according as the managing committees of the several working companies may determine from time to time, or for a whole year.

5. COMPANY OF MASONS, BRICKMAKERS, TILERS, CARPENTERS, PATERN-MAKERS, &c.—One manager for the entire company, and sub-managers, &c., for the different departments, with sub-committees of management also, if desirable. All raw and other required materials, tools, &c., to be supplied at cost price from the general store of the ironmaster, or other of the working companies; and all labour, talent, &c., to be remunerated on the same principle as proposed for the company of smiths, &c. By these arrangements, the very best use will be made of all articles, tools, machines, and labour necessary or desirable for carrying on the works, generally and particularly, be it ever so complicated or extensive—so that all waste of either labour, time, or material would be effectually and radically avoided—points which NEVER can be realised under any other system of management than what is herein proposed.

GENERAL STORE.—The general store-yard of the ironmaster should contain due supplies of everything necessary or desirable for effectually carrying on every department of the concern, all of which articles to be supplied to the several working companies at the lowest possible price, to cover the expenses of the "yard;" this will be necessary, in order that all

finished results should be delivered to the ironmaster at lowest contract prices also. The store-keeper (who, together with his assistants, to be appointed and paid by the ironmaster exclusively) to be made answerable for all stocks delivered into his possession; and invoices of all purchases and sales to be given in to general office, weekly or monthly.

TRANSFER-BOOKS.—The ironmaster, or his general manager, to keep transfer-ledgers in his office, one for each working company, to be used somewhat thus:—1. A mining company's ledger, in which all the mining results to be delivered over, per invoice, to the custody of the ironmaster monthly; and such results to be passed to the debit of those working companies requiring them severally.—2. The same with the "furnace" company.—3. Ditto "mills and forges" company.—4. Ditto "smiths" company.—5. Ditto "masons" company, &c. By this arrangement all raw, unfinished, and finished results would be continually, as it were, in the custody of the ironmaster; and all losses would fall exclusively upon the members and funds of the several working companies, should any occur, whether of time or material; and the ironmaster would have only five accounts to settle monthly, instead of perhaps 500 or 1000.

BOARDING AND LODGING-HOUSES.—It would be very desirable to institute at large iron-works an extensive boarding and lodging-house, on economical and temperance principles, so as to put ironmasters in a position to readily attain due and instant supplies of common and other labour, when demand requires. This establishment to be built and fitted up by the proprietors of the general work; tenants to pay a fair rental for the same, and keep all things in due order and repair. Labourers, and others requiring employment, would then have a respectable "house of call" at the several iron-works that would afford them great conveniences, with comparatively very low charges, as well for food, drink, or lodging; tables of which "charges" to be publicly exhibited in all the public rooms of the establishment, together with "rules and regulations" for the conduct of boarders, and others also. Registered members of these houses always to have first chances for employment; registering fee, say 1d. per week, or more. No ale, beer, spirits, or other fermented liquors, to be sold at these houses, except small beer, ginger beer, lemonade, prepared milks, &c.

BEER-HOUSES to be discontinued entirely about the reformed iron-works, and PUBLIC-HOUSES only sparingly licensed. No member (or wife of member) of the proposed working companies to keep such licensed houses. "It is scarcely possible that facilities and invitations for drinking can abound more than they do in our large provincial towns"—the writer of this remark, in the *Law Magazine*, is evidently not aware of the temptation and invitations for drinking that are held out at the numerous beer-houses about iron-works, it may truly be said to be awful!

MARKETS OR BAZAARS.—An ironmaster would confer a great benefit upon his workmen, and their families, by instituting a convenient and good market (on the bazaar principle) for the supply of most of the necessities of life, under just and reasonable conditions, to be publicly promulgated and strictly enforced, to the effect that all attempts at obtaining extortionate prices for things, or exposing bad goods of any description for sale, using short weights or measures, or taking undue advantage of children or inexperienced persons, should be punished by fines (payable into the "casualty fund" before mentioned), or loss of standing in the market. The rents of such an institution would pay at least 10 per cent. interest for the cost of its erection. This is a point entitled to the serious attention and best patronage of every considerate ironmaster, for the better his workmen can be supplied with the necessities and conveniences of life, on any scale of wages, but particularly low ones, the better will they be able to perform the several duties to their employers, and so turn out all desired results at lowest possible cost; it is, therefore, manifestly the interest of an ironmaster to institute, and spiritedly maintain, a good public market, with "conditions" as above proposed; and that in preference to the adoption of "company's shops," as certain monopolies are frequently termed, institutions of very equivocal benefit to an ironmaster, although sometimes of manifest and serious injury to many of his workmen (honourable exceptions, of course, there are), upon whose healthful labour he (the ironmaster) must principally depend for success in his extensive and arduous undertakings.

RECAPITULATION of a few of the advantages that may be derived by following out the proposed "New System of Managing Extensive Iron-works"—viz.: 1. The real cost of all things would be accurately ascertained, and their minimum cost price also.—2. The ironmaster would always be insured the best results, in yield, quality, and cost, his raw materials can produce.—3. Wear and tear of tools and machines, and the consumption of all materials and labour, would be reduced to the least possible amount; and thieving to an incalculable extent radically prevented.—4. Every individual employed about the works would be paid "according as his work may be," and every honest and industrious man would be ensured a "fair day's wages for a fair day's work."—5. Ironmasters would be exempt from the loss, plague, and trouble of having litigious, incompetent, or improper hands upon their several premises.—6. All disputes with, or strikes of workmen would be entirely avoided; and every operative and agent be fairly promoted, according to their integrity, conduct, and skill.—7. The best talent and labour will always be at the command of the ironmaster, who will, at all times, be at a certainty as to quantity, quality, yield, and cost of all his objects of manufacture.—8. A greatly improved race of managers and operatives would be originated, and constantly retained, for the service of the ironmaster; and all out-of-sight processes would be conducted with equal precision, care, and economy, as if immediately under the master's eye. The accomplishment of these, and many other important advantages, would be the sure fruits of carrying into practice the improvements in iron metallurgy herein recommended. S. B. ROGERS.
Nantyglo, Oct. 1.

EXPLOSIONS IN COLLIERIES.

Sir,—In the year 1835, when the inquiry was instituted to which I alluded last week, it was ascertained, beyond all doubt, that the mode of ventilation then adopted, and still existing, was defective; that, in addition to the destructive elements, "fire-damp" and "choke-damp," evils existed of a remediable character; and, amongst others, the necessity of additional shafts in cases of extreme lengths of excavation, was clearly pointed out; but which has been continued on day by day from that time, a period of fourteen years, and many mines then requiring additional shafts are still working on with one only—the secret of which must be exposed. It is in evidence, by a perfectly competent witness, who, immediately after acknowledging the cause of danger, significantly added, "When gentlemen have expended 50,000l. or 60,000l. in sinking one pit, it might not be convenient to expend 20,000l. more in sinking another, merely to avoid the chance of any accident which might eventually happen." I believe this witness admired the truth, and, therefore, he would not conceal the fact, that the consideration of life was but secondary to the profits of the concern; or, in other words, it would be more convenient to bury fifty, or fifty times fifty, victims to explosions, than to incur an expense of 20,000l. in sinking another shaft; but work on *ad libitum* in some mines; although the same witness, in answer to the very next question, admitted that there were no less than five shafts for the ventilation of 100 acres in Wall's-End Colliery. These are facts which have hitherto escaped the notice of the Legislature; but which must not be suffered to pass by unobserved "when the good time comes." If the produce of one colliery will bear the expense of an additional shaft to every 20 acres excavated, there can be neither reason nor justice in exposing the working men and boys to hourly destruction, by excavating hundreds of acres with one shaft only.

Scarcely a Number of the *Mining Journal* is issued that does not contain a record of great devastation of life from this cause—too faithful a portrait of the misery endured by the widows and fatherless children of the destroyed—some suddenly snatched away by the effects of fire-damp; others from choke-damp, &c. But what are the preventive means adopted? It is well worth reflection! Notwithstanding the well-known inflammable qualities of carburetted hydrogen, and which is powerfully combustible, with an estimated admixture of atmospheric air, a fiery furnace is brought into requisition, which I have seen more than 1600 ft. beneath the surface of the earth in its burning fury, and over which the majority of this dangerous gas must pass. Incredible as this may appear to those unacquainted with the subject, perhaps they will be even more incredulous to the fact, that carbonic acid gas, or choke-damp, so extensively yielded in some mines, has the effect of extinguishing fire, and which is well known to have deprived them of their boasted means of safety, by putting the furnace fire out! Nor can they deny, that from a superabundance of hydrogen gas being discovered, with which the atmosphere of a mine has been too greatly impregnated to risk its passage over the furnace, they have deemed it necessary to extinguish the fire, and that upon a very short notice. In such case, how is the means of ventilation to be renewed? How is the furnace fire to be rekindled? Every moment's delay adding to the foulness of the pit! This, too, is to be found in the

official documents, which I prize much, and from which I need not depart. Notwithstanding a careful watch upon the various changes in the atmosphere, no one dared attempt to relight it by hand; and, after a lapse of six weeks, it was accomplished! But how?—by running a line from the top of the shaft to the furnace beneath, which is covered with tar and various combustibles, and slipping a red-hot ring down the line to the combustibles beneath; and thus their landed and cherished life preserver was set in motion!!!

So much for the sagacious miners of the north; so designated by my now silent vituperator, "A Viewer," of Houghton-le-Spring. Let us now see what the very majesty of viewers says upon the subject of improvement—"I think it is from science, or rather from genius, that we have anything more to expect! I do not think we are the persons to discover any new light! I would rather look to some person of genius or science who is not an immediate collier; and I think it is more likely that something might be elicited in that way, than by those going on daily in the working of the mine! The greatest improvements have been made in most businesses by people not immediately concerned in them!" Such was the opinion of the late Mr. Buddle.

In the present enlightened age, when discoveries of the most useful character to the commercial interests of this country, and to the public generally, are of almost daily occurrence, it is to be regretted that the precarious life of a miner has so long escaped due observation, notwithstanding the many appalling calamities from explosions in mines being so frequently brought under notice by means of that all-powerful agency—the public press. Whatever the evil may have been which has so long and so successfully baffled the skill of the scientific men connected with this considerable branch of trade, remorselessly slaying, as it has done, its thousands, and probably tens of thousands, of our fellow-creatures, let it no longer be said, that in the whole of the United Kingdom talent enough cannot be found to overcome the difficulty. The subject has been too long confined to one class of the scientific world, but who are evidently unable to keep pace with those times of improvement. This was acknowledged 14 years ago; I, therefore, invite men of sound intellectual power to the pleasing, though somewhat difficult, task of insuring the life of a miner, as securely as that of any other individual whose occupation is so widely different. Unfavourable opinions upon everything new, anonymously expressed, must be expected, but be not silenced by such means. I have no doubt that whenever the public mind is properly directed, and brought to bear upon this subject, the evil will speedily be removed, not only will the furnace be dispensed with; but, in all probability, a substitute will be found for the present means of lighting a mine, thereby preventing the possibility of explosion, provided neither candle or lamps be needed.

Still the removal of choke-damp must be accomplished; and I fearlessly assert that I have already suggested the means of effectually removing both fire-damp and choke-damp; and lest it should not be understood, I had intended, as promised, to detail more minutely this week the particulars of my scheme; but my enthusiasm has led me beyond the bounds of your space to do so; it must, therefore, form the subject for a future Number. After which, should the same repugnance exist, as hitherto exhibited, against putting it to the test, I shall feel myself justified in concluding, that it arises from a fear of self-condemnation on the part of the managers themselves, though they ought not to be jealous of others in attempting that which time and experience have proved them to be incompetent to accomplish. I would recommend them to bear in mind, that night against night cannot last for ever! and I should be pleased to find a few others enlisted in this good cause, who, like myself, would fearlessly throw conviction in the teeth of all those who persist in their present practice, in which case the poor, miserable, jeopardised labouring miner would rejoice in the prospect of obtaining justice and safety. By these means of exposing facts, the proprietors themselves will soon become acquainted with long-existing grievances on the part of those to whose dangerous occupation they may attribute their own wealth—facts which it is to be hoped, for the sake of humanity, they have hitherto been ignorant of; and when enlightened upon the subject, and become familiarly acquainted with the many unnecessary dangers to which their labourers have been exposed, they will, I have no doubt, be found foremost in promoting their future welfare. Such, at least, is the fervent hope of—C. COLWELL.
Borough-road, Southwark, Oct. 4.

ON THE GENERAL SYSTEM OF ATMOSPHERIC TRACTION.

Sir,—The perusal of Mr. Curr's last letter convinces me that the points of difference between us are not very great; nor should I trouble you with any further remarks upon the subject, but that I am in a measure compelled to do so by the concluding observation of your correspondent. I will, however, be as brief as possible. I stated in my last, that the maximum resistance offered by the air-pump might be fairly taken at 15 lbs. per square inch—the minimum at 2½ lbs. Mr. Curr considers this estimate as incorrect, and substitutes for these two quantities 10½ lbs. and 0. With the barometer at 20 in., and all considerations of friction excluded, his estimate is true. Mine, however, was founded upon other considerations. The practical extreme of exhaustion obtained in Mr. Stephenson's experiments was equal to a barometrical indication of 25½ in. (see Report, p. 22): this is equal to a pressure of 12½ lbs. The friction of the air-pump, together with the resistance offered by the valves, as well as by the air itself, at the high velocity of action involved under such circumstances, will not be considered as over-rated, if taken at 2½ lbs. per square inch. This, then, gives the minimum resistance, and 2½ + 12½ = 15 lbs. the maximum, as before stated.

The observation, however, which calls for special comment, is the following:—"The idea of pumping back the condensed air into the reservoir, after having fulfilled its office, although practicable, is, I think, delusive as to the beneficial effect of such operation, unless the capacity of the reservoir be made infinite; but should I be herein mistaken, I judge the same principle, whatever it may be, which effects such purpose, will be applicable to pump the steam, after it has fulfilled its office in the steam cylinder, back into the boiler." (*Mining Journal*, Sept. 29). Now, I am quite certain that Mr. Curr has got too much sense himself to suppose that any advantage could possibly result from "pumping the steam after it has fulfilled its office in the steam cylinder back into the boiler;" and I am, therefore, at a loss to understand why he should attempt to add such a silly idea upon me, or any idea whatever involving such a ridiculous inference. The intention of the patentees, as stated by me, is sensible, to say the least of it; the parallel absurd. ISHAM BAGGS.
London, Oct. 4.

CLARKE AND MOTLEY'S NEW RAILWAY SYSTEM.

RESPECTED FRIEND.—In reply to your correspondent, J. Weston, I hardly think he has allowed himself time in considering the subject of our patent railway (not track), and, therefore, I will endeavour to show him wherein he is mistaken. He seems to favour the idea that, by dividing the bearing plank in the manner proposed, I lose a considerable degree of sustaining power; this would be the case if the planks were not fastened together. Let me advise him, if he wishes to be well informed on the subject, to provide himself with two strips of wood (say, ½ in. by fully 4 in.) about 3 ft. long; then provide two blocks to represent the head of the pile, in which are notches, to receive the beam (say, ½ in. deep, and fully 2 in. wide), in which to lay the two strips of wood; let him then provide himself with two strips of iron, ½ in. wide, with holes 2 in. apart; let the pile heads be 24 in. from centre to centre, and then fix the two strips of iron to join halfway between the piles, and screw with fine screws both strips of wood together from pile to pile, only omitting to put screws in the parts extending beyond the piles; then let him load the centre to find what deflection a given weight will produce; having done this, then let him provide himself with a strip, 24 in. long, 1 in. by fully 2 in., and insert in the room of the former, to see what deflection the same weight will produce on the solid strip, and I think he will find the difference scarcely perceptible; let him then remove this, and refix the former, and screw together the parts that extend beyond the piles; then, presuming the ends to be held firmly down, I think he will find the splined beam bear from 30 to 50 per cent. more than the solid beam, because the compression property is greatly diminished, so that the beam becomes nearly all tension—in fact, by splicing in the manner proposed, it may be considered a timber suspension, as no material deflection can be made, by reason of its continuous combination. As to his idea of weakening the beam by the dovetailing the cross-tie, is he not aware that making holes, or dovetails, in the upper part of beams, if the same holes, or dovetails, are properly filled up, does not tend to weaken them? And with respect to his idea about the inconvenience of repairing, that is hardly worth a thought, as it will be very trifling; and if the timber is properly *Paymized*, we may presume upon a very considerable durability. With regard to his suggestion to make the bearings shorter, as the piles contain the larger part of the timber, the multiplying them would increase the expense without gaining a correspond-

ing advantage. Under these circumstances, I trust he will excuse me in not availing of his kind offer. In my description of our timber tracks, I forgot to mention that the triangle tracks are intended to be bedded in concrete, with the upper surface flush with the surface of the road. The grooves, as shown in the drawing, to be filled with fine gravel, or sand, whereby preventing as much as possible the tendency to slipping, and give greater effect to the tractive power of the driving wheels.

Stangate, Lambeth, 9 mo. 30. THOMAS MOTLEY.
P.S.—In consequence of some alteration in our design of the steam-carriage, the promised engraving of it must be delayed for a short time.

COPPER SHEATHING.

SIR,—It is obvious, from Mr. Pridaux's letter of the 25th Sept., that the result of those important inquiries respecting copper sheathing will ultimately be of benefit both to the smelter as well as the shipowner. It would appear also that the little information I gave through your columns of the 13th Sept. is of some importance to him; and as that gentleman promised, in a former communication, to give such alternate information as might be solicited, with some exceptions, perhaps, Sir, you will perceive that I am not at all inconsistent in putting one question—viz.: If Mr. Pridaux doubts the propriety of putting native or malleable copper, which is quite free from any earthy matter, into the 7th process, will he be good enough to explain what concomitant matters they contain, and which process he would prefer putting them into? This information would be of some service to us. I trust that this is not an unreasonable question, and that it is entitled to, and will receive, a specific answer, so as to ensure further inquiries going forward without the least interruption.

Oct. 2. A ROASTER MAN.

IMPROVEMENTS IN SMELTING COPPER.

[Specification of patent granted to Francis Hay Thomson, M.D., Hopo-street, Glasgow, for an improvement or improvements in smelting copper or other ores, * sealed March 14.]

This invention consists in the application of whinstone, or iron slag (which is of a similar nature to whinstone), or trap, basalt, syenite, or other stones of the same character as whinstone, being fusible silicates, as a flux in the smelting of copper ores, whether the ores be sulphurets, carbonates, or oxides. The invention is carried out as follows:—Suppose the ore to be a sulphuret, containing 20 per cent., or upwards, of copper, and the quantity to be operated upon to be one ton, which had been previously calcined, and is placed in an ordinary reverberatory smelting furnace. To this quantity of ore, 400 pounds of whinstone, broken into small fragments, and 70 pounds of coarsely pulverized coke are to be added, and the operation of smelting is conducted in the ordinary manner. The process is stated to be improved by the employment of barilla, in addition to the whinstone and coke; but, in this case, the quantity of whinstone is reduced; thus, for a sulphuret copper ore, containing 20 per cent. of copper and upwards, if 37 pounds of barilla be used, it will only be necessary to employ 200 pounds of whinstone. If the ore be a carbonate or oxide, containing 20 per cent. of copper or more, the whinstone and coke are to be used in the proportions above given; but, in addition thereto, the patentee introduces into the smelting furnace 56 pounds of limestone, and 20 pounds of oxide of iron; the operation of smelting is conducted in the same way as when a sulphuret ore is being treated; but the carbonate or oxide copper ores do not require to be first calcined. Barilla may also be used with advantage when carbonate or oxide ores are to be operated upon; and then only half the above-mentioned quantities of limestone and oxide of iron will be required. When the ores, whether sulphurets, carbonates, or oxides, contain less than 20 per cent. of copper, the proportion of whinstone above given is to be reduced one-third.

Instead of whinstone, iron slag, or trap, basalt, syenite, or other stones of a like nature to whinstone, may be employed in the same proportions. With regard to the other substances before mentioned, the patentee states that he does not confine himself thereto, as he has merely given them as examples of the classes of substances which he intends to employ; and he would use other substances of the same classes, if circumstances should render it advisable; thus the object to be attained by the use of coke is to introduce carbon into the furnace; and, therefore, coarse charcoal or anthracite coal might be substituted. Instead of oxide of iron, calcined black-band ironstone or carbonate of iron might be employed; and kelp might be substituted for barilla.—The patentee claims, as his invention, the improvements in smelting copper ores by the use of what is commonly called whinstone or other like stones, broken into fragments, or by the use of what is commonly called iron slag, all having carbon added, and either with or without alkali—as an improved flux.

* By a disclaimer, dated 14th September, 1849, the patentee has erased the words "or other" from the title of his patent.

ON PYROGEN.—No. XVI.

In explaining some peculiarities of the electro-tonic state, Prof. Faraday says, in the series of communications already referred to in these papers (*Philosophical Transactions*, vol. cxxii.), "The state appears to be instantly assumed, requiring hardly a sensible portion of time for that purpose. The difference of time between voltaic and magneto-electric action, rendered evident by the galvanometer, may probably be thus explained:—When a voltaic current is sent through one of two parallel wires, as those of the hollow helix, a current is produced in the other wire, as brief in its continuance as the time required for a single action of the kind, and which, by experiment, is found to be inappreciably small. The action will seem still more instantaneous, because, as there is an accumulation of powers in the poles of the battery before contact, the first flash of electricity in the wire of communication is greater than that assumed after the contact is completed; the wire of induction becomes at the moment electro-tonic to an equivalent degree, which the moment after returns to the state in which the continuous current can sustain it; but, in making, causes an opposite induced current to that at first produced. The consequence is, that the first induced wave of electricity more resembles that from the discharge of an electric jar than it otherwise would do; and when the iron cylinder is put into the same helix, previous to the connection being made with the battery, then the current from the latter may be considered as active in inducing innumerable currents of a similar kind itself in the iron, rendering it a magnet. This is known by experiment occupy time, for a magnet so formed, even of soft iron, does not rise to the fullest intensity in an instant; and it may be because the currents within the iron are successive in their formation or arrangement. But as a magnet can induce, as well as the battery current, the combined action of the two continues to evolve induced electricity, until their joint effect is a maximum; and thus the existence of the deflecting force is prolonged." The phenomena here detailed are explained by the properties of the electric matter; for the difference of time observed between the voltaic and magneto-electric inductive effects can only be accounted for the existence of pyrogen, which cannot enter at once into the substance of the iron, but requires a certain space of time to develop its effects in metal, which, if the electric fluid were merely an immaterial power, would not be necessary. The return current in the experiment with the hollow helix, and considered by Professor Faraday to arise from "the first flash of electricity in the wire of communication being greater than that obtained after the contact is completed," can only be accounted for by the existence of a material agency; for to suppose that an immaterial agent obtain an impetus of the kind is scarcely compatible with received ideas on the subject. It will be observed that this new degree, or state of organization, is not that which the particles of pyrogen would assume if induced upon solely by either the earth or the wire of communication, but is the result of the combined influence of the terrestrial and artificial currents. Hence the polarized state, or rather the position the particles assume, varies according to the strength of the artificial current. The height of intensity of the electro-tonic state fluctuates according to the power of the latter, it being greater at the first rush of the accumulated fluid than afterwards. When a disc of copper, says M. Ampère, was suspended by a thread, and surrounded by a helix or spiral, and when the charge of powerful voltaic battery was sent through the spiral, a strong magnet was at the same time presented to the copper disc, the latter turned as if it were to take a position of equilibrium, exactly as the spiral itself would have turned, had it been free to move. In this experiment we see distinctly the mechanical influence of the electric matter, which holds copper disc so completely in its grasp, as it were, that when the pyrogen moves to meet, or coincide, with the currents of the magnet, it carries metal with it. But for the existence of the electric matter this effect would not be produced, for the polarization of nothing is as great an ability as mechanical power and motion originating from nothing.

Edinburgh, October 3. J. J. LAKE.

STATISTICS OF COPPER, TIN, AND LEAD.

The third period of the current year having arrived, in which it is our usual practice to take a review of the progress of our mining industry, it is with much pleasure we lay before our readers the results of the sales of copper ores in Cornwall and at Swansea, by public ticketing, as showing a gradual and satisfactory improvement over the earlier periods of the month of September and of the year. On a comparison of the sales of copper ores in Cornwall, in the quarter ended 30th Sept. last, with those of that terminated on 30th June, the result is as follows:—

Quarter ending	Ore.	Money.	Aver. price.	Av. prod.	Fine copper.
Sept. 30, 1848	21,103	£194,495 11 6	£ 9 4 10	8,066	2992 17
June 30, 1848	26,531	£187,167 15 6	£ 7 2 2	8	2906 14
Increase	472	£7,327 15 0	£ 2 8 1-6		86 3

From which it, at a glance, appears that a considerable improvement has taken place in the market value of the ore, for, while the general produce has improved only by a mere trifle, the price has advanced 2s. 8d. on 5l. 2s. 2d., or nearly 2½ per cent.

An equally satisfactory comparison will be made with the quarter ended September 30, 1848, which will stand as follows:—

Quarter ending	Ore.	Money.	Aver. price.	Av. prod.	Fine copper.
Sept. 30, 1849	21,103	£194,495 11 6	£ 9 4 10	8,066	2992 17
Sept. 30, 1848	26,531	£175,509 16 6	£ 6 10 6	8	3053 14
Increase	1,923	£18,985 14 0	Inc. 0 5 8	Dec. 90 17	

Showing that, with a decrease in quantity of 1923 tons, as also in produce, there has been an increased price obtained of 5s. 8d. per ton, and a total surplus of 18,985 14s.

In the sales by ticketing, at Swansea, there has been a considerable decrease, principally attributable to the falling off in the importation of Australian ores, which falling off may doubtless be traced to the measures taken by the colonists for smelting the Burra-Burra ores on the spot. The results of the sales during the quarter just ended, as compared with that ended June 30, are as follows:—

Quarter ending	Tons of Ore.	Money.	Average Price.
Sept. 30, 1849	14,525	£104,911 6 0	£12 0 4
June 30, 1849	14,525	£104,911 6 0	£12 0 4
Increase	5,362	£101,292 6 6	£ 1 16 0

And with the corresponding quarter of the previous year as follows:—

Quarter ending	Tons of Ore.	Money.	Average Price.
Sept. 30, 1849	14,525	£104,911 6 0	£12 0 4
Sept. 30, 1848	15,143	£161,563 16 0	£10 13 4
Increase	5,599	£56,672 14 6	Inc. £ 1 7 0

A result which is, at least, so far calculated to allay those fears which were, we think, as we have before expressed, unnecessarily raised, that the reduction of the duties on the importation of foreign copper ores would divert the capitalist from the development of our home mines, and thus bring destruction on the industrious and hardy population in the metalliferous districts of Cornwall and Devon. We sincerely trust a brighter sun is rising over our mining horizon, and that the present gradual and legitimate improvement may prove the harbinger of still greater prosperity.

The above quantity of copper ores, sold at the Swansea ticketings, were made up as follows:—

	21 cwt. Ore.	Money.	Average Price.
Foreign	6455	£86,926 16 6	£13 6 3
Irish	2859	£18,126 6 6	£ 6 3 0
Welsh and sandries	520	£80 18 6	£ 4 2 6
Total	9834	£105,133 10 0	£10 13 4

The following table shows the amount of foreign ores sold in the past quarter, the countries from whence imported, and the quantity sold in the quarter ended June 30:—

Country.	Tons.	Amount.	Aver. Price.	Tons.	Amount.	Aver. Price.
Cuba	3806	£49,039 16 6	£12 11 2	6096	£72,494 11 6	£11 17 10
Australia	900	£16,353 16 6	£ 18 3 4	4294	£83,154 14 6	£19 10 6
Sancti	759	£9,285 4 6	£ 12 2 2	353	£5,622 12 0	£15 17 8
Chili	375	£7,359 17 0	£ 19 12 4	851	£9,566 8 0	£11 14 7
N. Zealand	307	£3,111 11 0	£ 10 9 9			
Chili	12	£95 2 0	£ 7 18 8	201	£4,572 14 6	£22 15 0
Total	6455	£86,926 16 6	£13 6 3	11795	£181,911 0 6	£15 8 5

The following is the produce of the principal copper mines of Cornwall, sold at public ticketings, with the average price per ton, number of ticketings, and amount of money received:—

Mine.	Ticketings.	Tons.	Amount.	Aver. price.
Devon Great Consols.	3	356	£2287 18 6	£ 6 4 0
Corn Consols.	3	2631	£17297 8 0	£ 6 11 6
Great Consolidated	4	2732	£18369 9 6	£ 6 12 6
United Mines	3	2835	£10523 14 6	£ 3 14 4
Par Consols.	6	1808	£1034 16 6	£ 5 10 0
North Roscar	2	1884	£8470 13 0	£ 4 9 11
Fowey Consols.	6	1444	£8045 4 6	£ 5 11 4
West Cornwall	3	961	£7660 16 0	£ 7 7 9
North Pool	3	1441	£858 0 6	£ 4 10 6
South Cornwall	3	748	£5168 14 6	£ 6 18 8
Wheal Seton	3	1168	£5072 13 6	£ 4 7 2
South Wheal Francis	3	536	£3031 0 6	£ 5 7 9
Tywarnhaile & Nanconk	3	1367	£5016 6 0	£ 3 14 1
Wheal Friendship	3	616	£4847 13 0	£ 7 17 4
Tinctor	3	1358	£491 13 0	£ 3 10 7
Trevelick	2	768	£544 13 0	£ 6 9 3
Levan	2	525	£273 0 6	£ 5 10 6
South Wheal Bassett	2	525	£378 0 6	£ 7 4 0
Trevelick	3	912	£3092 11 0	£ 3 17 9
Bedford United	3	368	£2875 1 6	£ 7 16 0
West Wheal Buller	3	289	£2432 7 6	£ 8 4 3
Perran St. George	2	304	£2375 1 6	£ 7 16 3
East Wheal Grouse	1	601	£2358 9 0	£ 3 18 6
West Wheal Treasury	2	321	£1890 0 6	£ 5 8 7
Wheal Comfort	2	776	£1888 9 0	£ 2 18 1
South Tolve	2	344	£1859 6 0	£ 5 8 0
Camborne Vein	1	494	£1694 0 6	£ 3 4 0
Wheal Agar	3	394	£1658 13 0	£ 4 4 2
Wheal Tremain	3	518	£1564 10 0	£ 3 0 4
Trevelick	3	298	£1542 18 6	£ 5 2 6
Poldice	2	303	£1513 1 6	£ 5 0 0
Wheal Henry	1	1401	£1401 0 6	£ 1 0 6
Wheal Bassett	1	172	£1264 1 0	£ 7 17 0
Creechbarn	3	238	£1196 5 0	£ 5 0 6
Condurow	1	347	£1180 1 0	£ 3 15 6
Trethellan	2	454	£1145 17 6	£ 2 10 6
S. Roscar & Wh. Chance	2	281	£982 16 6	£ 3 5 1
Wheal Mary	1	233	£942 9 6	£ 4 1 2
Marko Valley	1	346	£828 2 6	£ 2 3 4
Charlestown United	1	113	£797 19 0	£ 7 1 0
Dolcoath	1	126	£774 12 6	£ 6 18 0
West Seton	1	140	£773 10 0	£ 5 10 3
Grampian and St. Aubyn	2	140	£728 10 6	£ 5 4 0
Wellington	1	118	£711 13 6	£ 6 0 8
West Fowey Consols.	1	100	£648 0 6	£ 6 9 0
Wheal Mary Consols.	2	161	£527 14 6	£ 3 16 9
Wheal Ellen	2	126	£534 10 0	£ 4 1 4
East Fowey	1	156	£514 10 0	£ 3 28 0
Poldice	1	75	£416 10 0	£ 11 17 9
Holmbush	1	76	£412 0 6	£ 5 8 5
Wheal Vryyan	2	116	£342 14 0	£ 3 0 0
Gonnamens	1	40	£339 0 6	£ 8 9 6
Wheal Malden	2	76	£327 1 0	£ 4 6 0
Wheal Penhale	1	45	£273 7 6	£ 6 1 3
Wheal Pink	1	53	£210 13 6	£ 3 19 6
Wheal Jewel	2	43	£187 6 6	£ 4 7 0
South Wheal Fortune	1	22	£170 10 0	£ 7 14 6
Phoenix Mines	1	39	£169 12 0	£ 4 3 8
Wheal Busy	1	58	£160 11 0	£ 2 15 6
West Trethellan	1	40	£157 0 6	£ 3 18 6
Richard's Ore	2	37	£117 17 0	£ 3 0 6
St. Aubyn and Grylls	1	14	£14 10 0	£ 1 14 6
Alfred Consols.	1	30	£79 8 6	£ 2 12 8
Tamar Slag	1	15	£73 2 6	£ 4 17 4
Wheal Venture	1	8	£62 0 6	£ 7 15 0
Wheal Friendly	1	3	£55 4 0	£ 18 8 0
Poldice	1	12	£44 8 0	£ 3 14 0
North Downs	1	10	£34 5 0	£ 3 8 6
Wheal Prosper	1	6	£32 15 0	£ 5 14 5
Wheal Pleasant	1	6	£30 3 0	£ 5 0 6
Carthay Consols.	1	16	£26 16 0	£ 1 13 6
Unity Wood	1	5	£29 2 6	£ 5 0 6
North Wheal Abraham	1	5	£21 15 0	£ 4 7 0
Wheal Caroline	1	6	£17 2 6	£ 3 8 6
Godolphin Consols.	1	7	£16 16 0	£ 2 8 6
Wheal Plenty	1	4	£16 7 0	£ 4 0 0
Wheal Tolve	1	4	£13 16 0	£ 3 9 3
Williams's Ore	1	6	£9 15 0	£ 1 12 6
Wheal Nepton	1	2	£9 14 0	£ 4 7 0
West Wheal Rodney	1	4	£8 18 0	£ 2 15 6
East Cornish	1	1	£5 16 0	£ 5 16 6
Wheal Fortune	1	2	£3 5 0	£ 1 2 6
Total		37,103	£194,495 11 6	£ 9 4 10

The above quantity of 2899 tons of copper ore, from the mines of Ireland, were produced as follows:—

	Tons.	Money.	Average Price.
Berabreen	1648	£13,340 17 0	£ 8 9 9
Knockmahon	732	£4012 12 0	£ 5 9 8
Ballymurrigh	468	£332 17 6	£ 3 19 1
Lackamore	47	£26 0 0	£ 6 1 8
Cronoluna	2	£2 0 0	£ 26 0 0
Tigrony	2	£2 0 0	£ 26 0 0
Total	2899	£18,126 6 6	£ 6 8 0

The produce of the quarter ending 30th June was 2754 tons, realising 19,802 2s. 0d., or an average per ton of 7l. 3s. 9d.—showing that, notwithstanding an increase of 145 tons in the past quarter over the preceding one, there has been a falling off in money of 1675l. 15s. 6d., and in the average price 18s. 9d. per ton.

The above several quantities of copper ores were purchased by the smelting companies as follows:—

Companies.	Tons.	£ s. d.	Tons.	£ s. d.	Tons.	£ s. d.
Mines Royal	2851	13,929 0 6	—	—	2851	13,929 0 6
Vivian & Sons	8754	45,480 16 6	1794	15,582 17 0	10548	61,163 13 6
Freeman & Co.	4582	22,563 4 11	604	4,882 10 9	5186	27,446 0 8
Grenfell & Sons	4934	25,316 1 6	1873	15,012 6 0	6807	40,328 7 6
Crown Copper Co.	263	1,538 10 6	—	—	263	1,538 10 6
Sims, Williams	6318	25,226 5 8	1085	16,749 6 0	7403	41,975 11 9
Williams, Foster	7558	46,272 4 0	2563	20,721 18 5	10121	66,993 2 5
Schneider & Co.	2843	13,669 2 4	580	10,042 17 0	3423	23,611 18 10
B. Smith	—	—	129	8,179 5 0	129	2,172 5 0
English Copper	—	—	758	7,270 14 17	758	7,270 14 11
British & Foreign	—	—	207	3,379 1 8	207	3,379 1 5
Copper Co.	—	—	—	—	—	—
Total	37,103	194,495 11 6	9563	104,911 6 0	46,666	299,409 12 6

LEAD.

There has been a decrease in the quantity of lead ore sold by ticketing in Cornwall and Wales, during the quarter recently expired, as compared with that ended 30th June, amounting to 923½ tons, and returning a less amount in money by 12,261 5s. 5d., notwithstanding we have received the returns from those mines which we have generally published with the usual regularity.

The following are the mines from whence the quarter's produce has been obtained, with the amount of money received:—

Mines.	Tons.	Money.
East Wheal Rose	884	£ 10938 10 6
Lisburne Mines	540	6077 2 6
Trelawney	325	5667 6 0
Goginan	300	4300 17 6
Tamar	201	4071 10 6
Luxley	390	3987 10 0
Wheel Mary Ann	292	3912 8 0
Herodasfoot	288	3443 8 0
South Australia	253	3041 6 0
Prionfowng	290	2914 13 0
Mace-y-saffin	295	2804 5 0
Hendre	280	2727 0 0
Pez-y-henblas	269	2670 11 0
Milford	220	2312 10 0
Deep Level	251	2388 0 0
Talacre	205	2244 10 0
Trehane	181	2165 8 6
Newtonards	200	1817 10 0
Cwmystwith	170	1659 0 0
Callington	97	1654 9 6
Mace-y-ardwin	183	1631 9 0
Jamaka	154	1584 0 0
Westminster	140	1338 7 6
Arkansas	644	1233 3 9
Shallee	85	989 2 6
Llanfair	40	984 0 0
East Tamar	67	889 8 6
Holmbush	56	870 2 0
South Tamar	84	818 11 0
Peel	75	783 0 0
Costla Lys	738	752 2 0
Belgrave	80	749 2 6
Douglas	75	744 7 6
Machynlleth	79	716 8 6
Cairnsmore	80	701 0 0
Wheel Adams	76	677 15 0
Black Craig	67	673 8 0
Talargoch	61	671 0 0
Catch	54	519 15 0
Eagle Rock	32	362 16 0
Cwm Erfin	32	362 16 0
Wicklow	59	356 5 0
Wheal Penhale	32	333 4 0
Abertano	306	306 11 0
Pant-y-celin	25	28 0 0
Barristown	26	264 11 0
Cwm Sebon	17	232 1 0
Bog Mine	25	228 2 6
Nantos	24	217 4 0
Pantymwyn	30	192 10 0
Rhyrddol	208	184 16 0
Garras	23	161 10 0
Portmadoc	23	161 10 0
Bodelwydan	15	157 17 6
Tregordan	54	157 14 3
Holywell Level	19	130 0 0
Rhewerth	9	94 10 0
Cwm Vigno	7	65 16 0
Brynmw	3	31 17 0
Farys Mine	2	16 0 0
Brynford Hall	1	10 0 0
Total	Tons 7836½	£93,059 11 6

New Patents.

[From the *Mechanics Magazine* of this day.]

SPECIFICATIONS ENROLLED DURING THE PAST WEEK.

R. GORDON, engineer, Heston Norris, Lancashire: Improvements in the ventilation of mines. Mr. Gordon remarks, that the present system of furnace ventilation in coal mines is uncertain and dangerous. In consequence of the liability of the attendant to be rendered heavy and sleepy by the inhalation of noxious fumes, so as to neglect his duty, and of the temperature of the current of air to become lowered by the water which oozes through the strata, whereby, if the barometer suddenly falls, or an eddy forms in the up-cast shaft, the ventilation will be stopped; and, lastly, of the fire being put out by choke damp. Now, this invention has for its object to prevent accidents to the miners from the occurrence of any one of these circumstances, by closing the mouth of the up-cast shaft, and leading the air from it to the ash-pit of the steam boiler furnace, the door of which is closed, in order that the air necessary for combustion may all be drawn from the mine. Communication is also opened between the mouth of the up-cast shaft and the chimney direct, for the purpose of enabling the attendant, who will be under the observation of the bank inspector, to prevent such quantity of gas as would put out the fire from passing to it, and causing it to flow into the chimney, up which it will be drawn by the draught from the fire, the furnace door being opened for that purpose. The patentee also proposes to close the shafts when the miners are absent, and to exhaust as much of the contents as possible, so that the deleterious gases which lurk in the crevices of the mine may be drawn out and adulterated by allowing a current of air to rush in suddenly and mix with them.

J. T. WILSON, Glasgow: Improvements in the manufacture of sulphuric acid and alum. This invention consists in employing a glass chamber, instead of a leaden one, in the manufacture of sulphuric acid. The chamber is to be constructed of sheets or panes of glass, of a thickness indicated by one square foot, weighing 16 lbs., and of any convenient length and breadth, which are supported in a suitable framework of yellow pine, free from knots. The bars have rollers cut in them to receive the panes, and are protected from the action of acid and heat by fillets of glass, which are cemented to their inside surface, and secured thereto by glass pegs or screws. The joints between the panes themselves, and between them and the fillets, are ground so that they may fit closely together, and are, moreover, rendered perfectly air-tight by a luting being brushed over them. The cements and lutings should, of course, be such as would not be affected by the acid or heat. In manufacturing alum, according to Mr. Spence's process, patented 1845, it has been customary to heat the liquors employed to digest the shale by passing steam through them when all placed in the same vessel, but this mode was attended with this inconvenience, that the liquor could never be raised to a temperature sufficiently high to dissolve all the shale. Now the improvements under this head consist in heating the liquors, in a separate vessel, to 150 or 200° Fahr., and then running it in upon the shale. It has been usual to dilute the sulphuric acid with the mother liquors repeatedly, whereby a considerable portion of the acid is thrown out and lost, in consequence of its combination with alumina and iron. The patentee, therefore, proposes to mix them with the ammoniacal liquors of gas-works, to form sulphate of ammonia, which is afterwards mixed with the sulphate of alumina, whereby the fresh and previously-formed alum is deposited.

Claims.—1. The use of glass in pieces, frames, or sheets, to construct the chambers used by sulphuric acid makers (or other vessel for the same purpose), of whatever form or size, so as to present to the interior a glass surface. 2. Heating the liquors employed in digesting shale in a separate vessel. 3. Mixing the mother liquors with ammoniacal liquors, to form sulphate of ammonia.

C. GREEN, patent brass tube manufacturer, Birmingham; and J. NEWMAN, manufacturer, Birmingham: Improvements in the manufacture of railway wheels. A bar of iron is bent into a circle, and the edges welded together. It is then placed in a bed die, constructed so as to receive the periphery and flange of the wheel, and subjected to the action of a top die, which is hollowed out into the shape of a dome, whereby the upper or plain end of the hoop will be bent inwards; after which it is passed through a series of dies, each having its dome of a lesser curve than the preceding, until the last assumes the appearance of a level surface, and forms the flat centre of the wheel—the hole to receive the nave. The nave is then punched, but leaving the edges ragged in order that the two surfaces may more readily and effectually combine together. The nave is composed of a cylinder in two pieces, which is placed in the central hole of the wheel, and over a mandril fixed in the bed die. It is then subjected to a series of top dies for the purpose of welding it to the disc, and of giving it the required form; care being taken to place in the first instance a moveable ring round it, between the disc and bed die, for the purpose of confining it within certain limits.

Claim.—The mode of manufacturing the peripheries, centres, and naves of railway wheels.

W. BUCKWELL, civil engineer, of the Artificial Granite Works, Battersea, Surrey: Improvements in compressing or solidifying fuel or other materials. This invention consists in solidifying and compressing fuel, by percussion, into blocks suitable for stowage. The fuel (coke for example) when reduced to a granulated state, and moistened with water, or by the humidity of the atmosphere, is placed in a stout cast-iron cylinder, faced on the inside with wrought-iron or steel, and subjected to the action of a steam hammer of three tons weight, and making 50 strokes a minute. It is stated that it has been found advisable not to force the block of fuel out of the cylinder immediately after the stroke. And for this purpose a piece of iron is, in the first instance, placed in the cylinder and allowed to rest upon a prop, which works up and down like a piston in a steam cylinder, and is securely supported against the bottom of the iron at the extremity of the up-stroke, during the moment of percussion. The descent of the steam hammer drives out the iron block, and forces the powdered fuel, which was placed above, into its place, whereby it will be compressed and solidified. The iron block is then laid aside, and the compressed fuel separated from that in powder, which is above, by the interposition of an iron plate. The blocks of compressed fuel are subsequently dried by exposure to the atmosphere, or to heated air. When the granulated fuel is too dry or too moist, it will destroy the effect of impact, it will soon be made manifest by the escape of a quantity of powder, or by the exudation of moisture through the side; but the experience of the workman will soon enable him to arrive at a knowledge of the degree of moisture which is requisite to insure successful working of the invention.

Claim.—Compressing and solidifying fuel in moulds by percussion.

H. HOWARD, Railway-place, Fenchurch-street, London: Improvements in the manufacture of glass, also in the construction of furnaces for melting and firing the same. This invention consists in placing the descending flues between or behind the pots, and in contracting the furnace so as to maintain the flame on a level with them, and by these arrangements cause the heat to encircle and impinge against the pots, thereby effecting a uniformity of temperature and facilitating the melting process. The descending flues are represented as being placed in the four corners of the chamber appropriated to the reception of the pots, which are placed between them and the furnace. The patentee shows the application of his invention to a three and five-pot furnace; and also a double furnace arrangement, with a number of holes for feeding in the fuel, and "teaser holes" to permit of access to the pots. 2. It is proposed to place a thin sheet of platina above the furnace, supported in a suitable manner, in order to prevent the "droppings" falling from the crown into the refining pots. 3. The annealing furnace is constructed with the flues in the centre, on a level with the bottom, and with holes in the top, for the purpose of cooling down the metal, and admitting light when the contents are to be removed.

Claims.—The peculiar construction of furnace for melting and casting glass, in which the flame is made to encircle and impinge directly against the sides of the pots, effecting thereby uniformity of heat, and an improved quality of material. 2. In the portability of the construction of furnaces for melting glass, with one or more working holes. 3. The adaptation of a sheet of platina to the crown of melting and refining furnaces, to prevent the droppings falling into the pots. 4. The peculiar form and construction of an annealing furnace with flues in the centre near the bottom, and holes in the top for allowing the heat to escape, and admitting light when emptying it of its contents.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

J. Higgins, Salford, Lancashire, machine maker, and T. S. Whitworth, Salford, afore-said, mechanic, for certain improvements in machinery for preparing, spinning, and doubling cotton, wool, flax, silk, and similar fibrous materials.

W. Jameson, Ashton-under-Lyme, Lancashire, machine maker, for certain improvements in looms for weaving.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

J. Gray, Edinburgh, gray dish.
W. F. Padwick, Southampton, garden drill.
Gray and Keen, Liverpool, rural log timer.
J. B. Winder, Birmingham, envelope.
J. Human, C.E., March, Cambridgeshire, water elevator.

ARTIFICIAL MAHOGANY.—The following method of giving any species of wood of a close grain the appearance of mahogany, in texture, density, and polish, is said to be practised in France with success. The surface is planed smooth, and the wood is then rubbed with a solution of nitrous acid; one ounce of dragon's blood is dissolved in nearly a pint of spirits of wine; this, and one-third of an ounce of carbonate of soda, are then to be mixed together, and filtered, and the liquid in this thin state is to be laid on with a soft brush. This process is to be repeated, and in a short interval afterwards the wood possesses the external appearance of mahogany.

THE ROYAL BRITISH BANK.—The directors have issued a circular of the terms of business to be adopted upon the opening of the bank, which is speedily to take place: 1 per cent. is to be allowed on all drawing accounts, constant for six months, of 100l. and upwards, and 2 per cent. on all accounts exceeding 200l. On deposits for six months, whatever may be their amount, 3 per cent. will be allowed. Cash credits will be granted to respectable parties with two sureties, at 5 per cent., and 1 per cent. commission.

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Carr's Hartley 16—East Adair Main 13 3—Hastings Hartley 16—Holywell Main 16—Ord's Redheugh 15—Tanfield Moor Butes 13 6—West Hartley 16—Wall's End Bewick and Co. 18—Hedley 17 9—Bradley 16 4—Lambton 19—Denison 17 3—South Kelzie 17 9—Adelaide Tees 17 6—Seymour Tees 17 9—Graigola Biregore 20 6—Llanglennoch 22—Nixon's Merthyr and Cardiff 21 6—Sidney's Hartley 16—Ships at market, 29; sold, 26.

WEDNESDAY.—Hastings Hartley 17—Holywell Main 16—Tanfield Moor Butes 13 6—Townley 15 6—Wall's End Clarke 16 6—Gibson 17 9—Hedley 18—Hilda 17 9—Hoburn 17 9—Hartley 17 9—Percy 17—Riddell 17 9—Lambton Primrose 18 3—Bradley 19—Hutton 19—Stewart's 19—Hartlepool 19—West Hutton 18—St. Helen's Tees 17—Tees 19—West Cornforth 18 2—Graigola Biregore 20 6—Nixon's Merthyr and Cardiff 21 6—Ships at market, 41; sold, 34.

FRIDAY.—Carr's Hartley 17—Hastings Hartley 17—Holywell Main 16—Tanfield Moor 14—Townley 15 6—Wall's End Benscham 17—Hedley 18—Hilda 18—Heaton 18 3—Morrison 18 6—Riddell 18 6—Eden Main 18 6—Lambton Primrose 18 6—Plummer 19—Caradoc 18 6—Hartlepool 19 6—West Hutton 18—Adelaide Tees 19—Graigola Biregore 20 6—Nixon's Merthyr 21 6—Ships at market, 24; sold, 22.

OXFORD, WORCESTER, AND WOLVERHAMPTON RAILWAY.

The directors of this company have issued their promised reply to the charges made by implication against them in the report of the committee of investigation, recently published in the Times. With reference to the allotment of the company's shares when at a premium, the directors refer to the protracted contest which ended in the passing of the Oxford, Worcester, and Wolverhampton Railway Bill, and state that the 7000 shares remained unallotted when the bill passed the committee of the Commons; the shares then rose to a premium, and it became the duty of the directors to allot them without any delay, before any reverse should occur. It was legally impracticable for them to issue them at a premium before the incorporation of the company; they could only have been assigned to individuals upon trust for this purpose, on condition of the premiums being handed over to the company when legally in a position to receive them; and if the bill had been lost the trustees would have been responsible. The directors urge that no such parties could have been found to assume the responsibility, and, "as the object of the directors was to win the bill, and not become dealers in shares, it was eventually determined to allot these shares in the usual mode among those persons who had borne the heat and burden of the day, and who were, moreover, expected to bear it to the end." The directors also declare that "several of the larger recipients used them more for the purpose of securing the necessary support for the bill than for any other object, and that they were not entitled to the shares until the bill had passed the Commons; and that they were allotted amongst such of the directors of the Oxford, Worcester, and Wolverhampton Company "as chose to take them with the condition of holding them." [These are, as a discount of about 4l. 10s. per share.] As to the second charge, the directors justify their mode of keeping their accounts, and append to their report a copy of a letter from Mr. Norton, the auditor's accountant, who periodically examines the books of the company, and who expresses his opinion that no cash-book is required, "as all moneys are paid to the bankers, and all payments made by checks upon the bankers, except small amounts, which are entered in a petty cash-book." As to the third charge, of reckless improvidence in payments for land, rails, &c., the directors declare that the greatest possible economy was practised, and dwell on the difficulties which they, in common with the directors of other railway companies, met with in effecting land purchases. They do not deny that the contractors for the purchase of rails have proved prejudicial to the interests of the company in their altered circumstances, and the delay that has taken place; but the directors observe that the contracts were made at the suggestion of Mr. Brunel, the engineer, upon an apprehension that prices would rise, in consequence of the number of railways to be constructed. As to the fourth charge, the directors review the state of the company's affairs when the company's Act was passed, and show that the original contract with the Great Western Company was for a lease at 3d per cent., on a capital of 1,500,000l., the estimate made for the purchase of rails having been 2,500,000l. As to the fifth charge, guarantee to 4 per cent. on an increased capital of 2,500,000l. As to the sixth charge, the directors then believed that if it was found an insufficient capital to complete the line, the Great Western Company would still further extend their guarantee. The directors had been urged to complete the agreement with the Great Western Company, but had been divided in opinion, some of them thinking that "it was better to wait the ultimate cost of the line before any formal instrument was executed." The report thus concludes.

In conclusion, the directors have only to express their great regret that the labours of the committee, instead of being directed to the objects stated by Mr. Capel in his speech upon moving the appointment of the committee, when he stated that, "the committee would act entirely in co-operation and confidence with the directors," should have been expended chiefly in inflicting what they cannot but regard as useless and unmerited criticisms on their conduct and proceedings; and with no other practical result than in leaving the question of the affairs of the railway itself as they found it.

A RAILWAY CHAIRMAN IN A DILEMMA.—At a meeting of the Dundrum Railway Company, in Ireland, a few days since, it was moved that the chairman should be thrown out of the window; an amendment was proposed that he should be shoved down stairs; the original motion was, however, adopted, and was about to be carried into effect, when a general fight ensued, and directors and shareholders appeared next day at the police-office.

PUNCTUALITY TO TIME BY RAIL ENFORCED.—An Exeter solicitor, detained for an hour at the Starcross station on the South Devon line, was lately awarded 10s. damages by a jury, on the ground that an hour's delay in the arrival of a train, without good excuse, was actionable under the contract to carry passengers at a certain time, implied in the company's time table.

RAILWAY CALLS.—The calls advertised for October amount to 1,046,749l.—11,106l. are on account of foreign companies. For the corresponding month of last year they were 1,693,555l. The total calls for the first 10 months of 1849 now amount to 17,700,964l., against 30,072,610l. in the same period of 1848.

NORTH STAFFORDSHIRE—TRAFFIC RETURN.—Dr. To working expenses, canal carrying, limestone getting, and depreciation fund, 13,780l. 8s. 2d.; interest on debentures and canal shares, 6575l.; estimated balance, available for dividend on share capital, 3475l. 17s.; total, 23,831l. 5s. 2d.—Cr. By gross receipts of canal and railway for the month of Aug., 1848, 23,831l. 5s. 2d.

GREAT WESTERN RAILWAY TO WINDSOR. This company have made arrangements for opening their line from Slough to Windsor on Monday.

SOUTH WALES RAILWAY.—The works between Newport and Gloucester, are going on rapidly, and portions of the permanent way are being laid.

MADRAS RAILWAY.—The survey of the intended line of railway for Madras has been completed for a distance of 15 miles, and the results are favourable, so far as the engineering details are in question. The road is almost level, presenting a rise only of 44 feet per mile, somewhat under 56 feet throughout the whole distance. For the first two miles out of Madras the soil is but indifferent, and will require to be strengthened. The next two miles is composed of very loose material, consisting of two parts of sand and one of clay; for a mile and a half further on, the ground is half sand and clay, after which the line runs through a soil well calculated to sustain the weight of the iron road.

WORKING EXPENSES.—The engine-drivers upon the Great Western Railway have, for the last five or six weeks been receiving, in addition to their wages, some 8s. per week per man as premium upon the amount of coke saved by them, below the amount fixed by the regulation table of the superintendent. We believe the next half-yearly accounts of this company will show that the line is worked at as low a rate as any in the kingdom.—*Railway Record.*

LOANS ON DEBENTURES.—The CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £500.—Applications to be made or addressed to this office.

By order, D. RANKINE, Treasurer.

125, George-street, Edinburgh, May 30, 1849.

BRISTOL AND EXETER RAILWAY—WHOLE SHARES.

CALL FOR TEN POUNDS PER £100 SHARE.—Making with previous Calls, £100 per Share.

The directors of this company, under the provisions of the Act of Parliament, hereby give Notice, that the proprietors of £100 shares are required to PAY the sum of TEN POUNDS on each of their respective shares, in the two following instalments—viz.:

£2 per share on or before the 15th day of December, 1849; and

£8 per share on or before the 15th day of March, 1850.

At any of the undermentioned Banks—viz.:

LONDON—Messrs. Glyn, Halifax, Mills, and Co.

LIVERPOOL—The Bank of Liverpool.

MANCHESTER—Messrs. Lloyd, Entwistle, and Co.

BRISTOL—Messrs. Miles, Harford Battersby, and Co.

" Messrs. Baillie, Baillie, and Co.

" Messrs. Stuckey and Co.

" The West of England and South Wales District Bank.

" The National Provincial Bank.

EXETER—The Devon and Cornwall Banking Company.

" The West of England and South Wales District Bank.

" The National Provincial Bank.

" Messrs. Sanders and Co.

Who are instructed to charge interest at 5 per cent. per annum on all arrears, and to allow interest at the same rate, on all payments made before the above-mentioned dates respectively.

By order of the directors, J. B. BADHAM, Secretary.

Office, Temple-meads, Bristol, Sept. 28, 1849.

BRISTOL AND EXETER RAILWAY—THIRD SHARES.

CALL OF FIVE POUNDS SIXTEEN SHILLINGS AND EIGHTPENCE PER

Third Share.—Making, with previous Calls, £33 6s. 8d. per share.

The directors of this company, under the provisions of the Act of Parliament, hereby give Notice, that the proprietors of Third Shares are required to PAY the sum of FIVE POUNDS SIXTEEN SHILLINGS AND EIGHTPENCE on each of their respective Third Shares, in the two following instalments—viz.:

£5 16s. 8d. per Third Share on or before the 15th day of December, 1849; and

£5 per ditto on or before the 15th day of March, 1850.

At any of the undermentioned Banks—viz.:

LONDON—Messrs. Glyn, Halifax, Mills, and Co.

LIVERPOOL—The Bank of Liverpool.

MANCHESTER—Messrs. Lloyd, Entwistle, and Co.

BRISTOL—Messrs. Miles, Harford Battersby, and Co.

" Messrs. Baillie, Baillie, and Co.

" Messrs. Stuckey and Co.

" The West of England and South Wales District Bank.

" The National Provincial Bank.

EXETER—The Devon and Cornwall Banking Company.

" The West of England and South Wales District Bank.

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Who are instructed to charge interest at 5 per cent. per annum on all arrears, and to allow interest at the same rate, on all payments made before the above-mentioned dates respectively.

By order of the directors, J. B. BADHAM, Secretary.

Office, Temple-meads, Bristol, Sept. 28, 1849.

THE PATENT OFFICE AND DESIGNS REGISTRY.

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INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION OF INVENTIONS AND DESIGNS, with reduced Scale of Fees.

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WIRE ROPE.—The Undersigned beg to inform the public, that they have become SOLE LICENSEES of Mr. ANDREW SMITH, for the MANUFACTURE and SALE of his PATENT WIRE ROPE; and having fitted their premises with his very superior improved machinery, have only to assure those who may favour them with their orders, that the same care and attention shall always be bestowed which they have reason to believe, has secured them such general support.

LIGHTNING CONDUCTORS, SIGNAL CORD, and SASH LINE, always in stock.

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CONNECTING THE MINING INTERESTS OF ENGLAND AND WALES.

OFFICES—31, CORNHILL, LONDON.

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Capital £100,000, in shares of 20s. each, to be paid in full on allotment.

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EDWARD OXFORD, Esq., 26, Throgmorton-street, and Mecklenburgh-square.

W. YATES FEEL, Esq., Tamworth.

FREDERICK A. FEEL, Esq., Doshill Lodge, Warwickshire.

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Sir WILLIAM OGILVIE, Bart.

FREDERICK A. FEEL, Esq.

W. YATES FEEL, Esq.

JOHN WREFOED, Esq.

AUGUSTUS COLLINGRIDGE, Esq., MANAGING DIRECTOR.

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Mathew French Wagstaff, Esq., M.R.C.S., 10, Walcot-place, West Lambeth.

Fred. Chas. Crane, M.R.C.S., Leicester-square.

BANKERS.

Messrs. Currie and Co., 29, Cornhill; Commercial Bank of London, Lothbury.

SOLICITOR.

John Chapple, Esq., 70 A, Aldermanbury.

MAINE DEPARTMENT.

Underwriter—Mr. John Povey, Member of Lloyd's.

LIFE DEPARTMENT.

Actuary—Mr. Alfred Burt.

FIRE DEPARTMENT.

Superintendent—Mr. John Nelson.

SURVEYOR.

George Moody Longmore, Esq.

BOOKERS.

John H. Golding, Esq., Warrford-court; Thomas Bayley, Esq., Warrford-court;

Messrs. Turner, Brothers, Throgmorton-street, London.

To shareholders this corporation offers an investment totally free from risk, with a valuable property and increasing source of dividend, such as few undertakings have ever been able to command, whilst the small amount of the shares, wholly paid, will enable persons in every grade of society to participate in the advantages, without the annoyances of any future call.

ASSURANCES EFFECTED ON THE LIVES OF PERSONS CONNECTED WITH THE MINING DISTRICTS, AT EQUITABLE RATES OF PREMIUM.

ADVANTAGES OFFERED TO THE ASSURED BY THIS SOCIETY.

1. The security of an ample paid-up capital.

2. Exemption of the assured from all liability of partnership.

3. Marine, Fire, and Life Assurances are effected with peculiar advantages by this society, and at a considerable reduction of premium.

4. Policies once granted indissoluble, and free of stamp duty to the assured.

5. Policies of twelve months standing are not affected by suicide, duelling, &c., and assigned policies are valid from the date thereof—an advantage of great importance, and peculiar to this society.

6. Credit given for half the premiums during the first seven years, at the rate of interest of 5 per cent. per annum.

7. Premiums to be paid quarterly, half-yearly, and annually.

8. The Life Department mutual—the whole of the profits being divisible amongst the life policy holders.

9. Annual Division of Profits (Life Branch) after the first seven years.

10. Immediate advances made upon policies upon approved personal security.

11. Claims upon policies to be paid three months after proof of the death of the person assured, or earlier, subject to such regulations as may be agreed upon.

12. No admission nor entrance fees are required, nor is any charge made for the policy.

13. Medical practitioners paid by the office for every case referred to them for their professional opinion.

Applications for prospectuses and forms for shares to be addressed to the directors, at Cornhill, London; to John Golding, Warrford-court; Thomas Bayley, Warrford-court; Turner, Brothers, Throgmorton-street, London, stock and sharebrokers; and to James Lane, mine and share agent, 80, Old Broad-street, London.